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# **Sensation in Psychotherapy through the Lens of Sensory Integration Theory**

**Georgina Bainbridge BSc (Hons), UKCP**

**Middlesex University and Metanoia Institute**

**Doctor of Counselling Psychology and Psychotherapy by Professional  
Studies DCPsych**

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## Abstract

Sensory integration is the organisation of sensory input helping children and adults make sense of the environment (Ayres, 2005). Dysregulation in sensory processing can have developmental consequences affecting play, behaviour and learning (Ayres, 2005; Kranowitz, 2006; Walbam, 2014). As a consequence both children and adults may present to mental health services with behavioural and emotional issues (Ayres, 2005; Gouze et.al., 2009; Miller, 2016; Walbam, 2014 & 2019). Approximately 3 million people across the UK are said to experience sensory processing differences.

This study attempts to add to the limited but growing cross-disciplinary dialogue between psychological practitioners and sensory integration experts from the field of occupational therapy. It asks how psychological services and practice can be informed by this theoretical and practical approach (Champagne, 2009; Walbam, 2014).

I interviewed six occupational therapists, trained in sensory integration theory and practice. Using a thematic analysis and interpretation of the data recorded, three master themes were established: sensory regulation and emotional regulation are entwined, evident in the practitioner approach and client presentation; tools and strategies to ground, calm, regulate and organize to engage thinking and finally the third theme highlights the disconnection between occupational therapy and psychological practice that could challenge communication between the disciplines. The implications for practice include: understanding how sensory integration issues can effect presentation therefore informing diagnosis and formulation. Sensory integration informed psychological training and practice including an inclusive stance and environment. Encouraging sensory assessment in psychological services and practice. Developing sensory empathy and inter-disciplinary communication and collaboration to understand the *sensory self*. Encouraging dialogue to map terms between psychology and occupational therapy.

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## 1. Introduction

This project examines how knowledge and practice from the field of occupational therapy could be understood and applied by practitioners in the psychological therapies. Such interdisciplinary approaches to research and practice are not new. Over the last few decades there has been an increasing trend towards the integration of psychology within fields as diverse as sport, nursing, sociology, and economics. The significance of this integration has recently been recognized by the American Psychological Association (APA, 2017) in its' newly introduced prize for interdisciplinary team research. The APA states that "research that integrates approaches from more than one field can lead to new insights into complex problems and to the development of novel interventions and technologies" (APA, 2017). A further example of this type of integration is in the fields of neuroscience and psychology. Interdisciplinary development across these subjects has enhanced knowledge and practice in the psychological therapies (Porges, 2011; Schore, 2003). This project builds on work such as this, and specifically examines the way that knowledge and practice in relation to sensory integration from the field of occupational therapy can potentially enhance psychological therapies.

Sensory integration is the organisation of sensory input that helps children and adults make sense of the environment (Ayres, 2005). The clinical term to outline patterns of sensory dysfunction is currently sensory processing disorder (Miller, 2009) although the term and categorisation itself is under constant review and scrutiny (Miller, 2017).

Disorganisation in sensory processing can have serious developmental consequences affecting play, mental health, behaviour and learning (Ayres, 2005; Gouze et.al., 2009; Kranowitz, 2006; Walbam, 2014 & 2019). As a consequence of this both children and

adults may present to mental health services with behavioural and emotional issues (Walbam, 2014). Although sensory processing disorder is shown to be independent of psychiatric disorder, between 33-63% of children meeting criteria for a psychiatric disorder were shown to have comorbid sensory regulation issues (Gouze et.al., 2009). Between five and seven per cent of the child population have sensory processing disorder (Ahn, et.al, 2004). This rises to 80% of the child population with the diagnosis of autism (NAS, 2018). This equates to approximately 300,000 children in the UK.. These numbers are difficult to confirm or refute with the research available at present. However it is important that psychological practitioners gain greater awareness of sensory integration and the impact that sensory differences have on function and emotion.

Research in developmental, affective neuroscience indicates that non-verbal sensory communication is important for psychological practitioners to understand (Schoore, 2005). Sensory integration has predominantly been studied in the field of occupational therapy (Ayres,2005). Sensory integration theory has a shared heritage with inter-subjective relational psychotherapy in affective neuroscience (Miller, 2017). Despite the research base being sparse and mainly positively focused towards the confirmation of sensory integration theory affective neuroscience provides a shared disciplinary context to this study.

## **1.1 Neuroscience and Sensation**

Ayres (2005) proposes that the senses are integrated and processed at an unconscious level akin to breathing – it happens for most of us without having to think about it. Current neuro-scientific research is focused on affective process that occurs at an unconscious,

embodied level through sensation in early caregiver relationships (Schorer, 2005). Understanding this primary, non-verbal communication is thought to be critical to the understanding of psychological practice (Cozolino, 2010; Ogden et.al., 2006; Rothschild, 2017; Stern; 2004; Van der Kolk, 2014).

Cozolino (2010) proposes that sensory infant reflexes influence attachment (Bowlby, 2010). This supports the idea that early developmental experiences are important as inter-subjective interaction between caregiver and infant stimulates growth and plasticity (Schorer, 2005). As Chefetz (2019) points out it is important to hold a critical attitude towards these neurological findings.

It is suggested that sensory communication between infants and their primary caregivers in mammal populations has a positive affect on emotion (ibid, Weller & Feldman, 2003). Schorer calls this a “conversation between limbic systems” (Schorer, 2003:144). The feelings as a consequence of sensation created between neonate and caregiver in the first few months of life are said to instigate bonding (Cozolino, 2010). “Mothers brains are activated by the smells, sights and sounds of their newborns, creating a pre-occupation with attuning to their needs” (Weller & Feldman, 2003:98).

## **1.2 Exteroceptive Sensation and Intersubjectivity**

The senses of smell, sight, sound, prosody and touch are thought to inform the intersubjective process of “brain-building” in typical neural brain development (ibid:100). Schorer describes this process as “a traffic of visual, prosodic auditory, and gestural signals that induce emotional affect” (Schorer, 2003:144). In the space of the non-verbal

between primary care-giver and infant - communication is in part through the exteroceptive senses of sight, sound, smell, taste and touch (Lorenz, 1973; McGilchrist, 2010; Stern, 1998). A description of how the senses work together and influence function has been proposed by Ayres (2005).

### **1.3 An Outline of Sensory Integration Theory**

Sensory integration theory was derived by Ayres (2005) who herself integrated trainings in occupational therapy and educational psychology. Ayres' definition of sensory integration is: "The organisation of sensory input for use. Through sensory integration, the many parts of the nervous system work together so that a person can interact with the environment effectively and experience appropriate satisfaction" (ibid, 2005:201). Regulation of the autonomic nervous system is said to be essential in order that a person can talk, listen and retain their ability to organise, integrate and process incoming information. Ayres sees sensory integration as the ability to take in, organise and use sensory information to enable a person to interact effectively with their everyday environment (ibid.) It is beyond the scope of this proposal to give a comprehensive reprisal of sensory integration theory but I plan to give an outline.

People have exteroceptive sensory systems: tactile, olfactory, visual, auditory and gustatory. They also have interoceptive sensory systems: neuroception (Porges, 2011) encompassing proprioception – how our bodies function in space and time, vestibular processing – how our bodies function in relation to gravity, and thermoception (Ayres, 2005). Sensations from these systems send information for our emotional and limbic systems to act upon. Functional sensory integration is thought to be where all of these

systems work together in order for an individual to make sense of the world (Ayres, 2005).

We register, orient to a stimulus, interpret the sensation, then organise our response and execute an action (Myles et.al., 2005). Adaptation to sensory information is thought by occupational therapists and psychologists alike to be learned during play in infancy (Ayres, 2005; Winnicott, 1974). Each individual has a different sensory processing experience (Dunn, 2001). Dunn suggests that through gaining greater knowledge of an individual's sensory pattern we may be able to design more effective interventions and will also advance our knowledge of sensory integration (ibid).

#### **1.4 Purpose of the Research**

Using my personal and professional experience to create a psychologically informed lens, this research asks how occupational therapists use sensory integration theory to inform their work and formulation with clients they identify as having sensory issues (Ayres, 2006). In order to gain as much depth and understanding as possible I have focused on the practical, subjective experience of six occupational therapists who identify as being expert in sensory integration theory and practice. The findings could be used to inform thinking and future research in psychological practice in general and psychotherapy in particular.

## **1.5 Significance and Contribution to Counselling Psychology and Psychotherapy**

### **1.5.1 Significance**

A review of the literature revealed that little has been written to enquire as to how sensory integration theory, tools and practice could inform psychological therapies when working with people with sensory differences (Walbam, 2014). Some practitioners have integrated sensory integration theory and practice into their work with clients labeled as having attachment issues (Breathnach, 2018; Hughes, 2018; Koomar, 2009). However a significant proportion of the population with sensory integration differences are potentially being misunderstood (Miller, 2009; Walbam, 2014). Dunn argues that understanding individual patterns of sensory processing differences may help to contribute to the creation of effective environments, interventions and the advancement of knowledge (Dunn, 2001). Sensory integration has been of interest to occupational therapy “*across the entire evolution of (the) profession*” (Dunn, 2001:609), however it has yet to broadly impact psychological theory and practice. This study attempts to ask how psychological practice and services could be informed and progressed.

### **1.5.2 Contribution**

- To highlight the gap in the literature in psychological therapies and services.
- Enable the modification of psychotherapy training to include specific information about sensory integration including both exteroception and interoception.
- Contribute to the creation of specific continued professional development training.
- Contribute to the discussion regarding assessment practices for psychological practitioners.

- Support a humanistic stance championing neuro-diversity, equality in language and equality of opportunity including inclusive access to psychological therapies.
- Highlight how clients, caregivers and services can be educated to be accepting of their sensory differences and support each other in that difference.
- The findings highlight how psychological therapists can support clients and caregivers to use sensory integration theory and tools to inform a stance of acceptance, affective regulation and engagement of reflective thinking.
- Support enquiry into the use of different media like video/3D motion analysis (Kaliarntas, 2014) for training purposes and with clients.
- The qualitative findings from this study may make a wider contribution to the literature about notions of subjective sensation in the form of transference and countertransference.
- Support the call for “translational research” (Miller, 2009) in the neuroscientific sub-speciality of multi-sensory integration.
- Highlight for psychological practitioners the client groups that may experience sensory integration issues: autism spectrum disorder (Hendrickx, 2015; Myles.et.al., 2009), sensory processing disorder (Ayres, 2006), trauma (Rothschild, 2015; Van der Kolk, 2014; Ogden et.al, 2006; and attachment related sensory processing issues (Breathnach,2018).
- Draw attention to some of the challenges that psychological therapists may face when attempting to research across disciplines.

## **1.6 Locating myself in the research**

My relationship with this research has been multi-faceted and complex. Being around people with sensory differences in both a personal and professional capacity means the subject has relevance. My personal experience led to a desire to integrate the learning of occupational therapy sensory integration theory into the field of counseling psychology and psychotherapy.

My personal connection to the field influenced my work as a psychotherapist on an inpatient psychiatric ward. I noticed many similarities with clients with a diagnosis of complex trauma and some of the sensory presentations I had experienced personally and read about in occupational therapy literature. I researched the area further and noticed others making these connections too (Baillon et.al., 2002; Brown et.al. 2009; Champagne & Stromberg, 2009; Gardner, 2016; Moore.et.al; 2008).

Whilst working as a psychotherapist in a residential, mental health setting during ward rounds I was able to present a sensory interpretation describing behaviour. I began to help the staff team understand the patients' behaviours as attempts at self-regulation using external stimuli to give interoceptive sensory feedback. I applied my theoretical and practical understanding from the field of occupational therapy to devise interventions to meet the patient need and reduce distress. For instance in one case a patient was rolling around outside in the garden, which made the staff frustrated. The patient spent time in their wardrobe and constantly engaged in behavior that demanded restraint. I described this behavior in the multi-disciplinary team meetings as potentially sensory



seeking for proprioceptive and vestibular feedback trying to gain emotional regulation. I suggested that this patient be given:

- time using a weighted blanket when distressed and encouraged the team to detail rolling in the care plan with a specific time to do so.
- when in the wardrobe to be given pillows and duvets inside the space to increase the proprioceptive feedback.
- allow this patient to attend lunch early when the sounds and smells of the dining hall were less pronounced.

The intervention most appreciated by this individual was the information and education given about sensory integration as they were able to devise their own sensory strategies. Self-understanding and acceptance seemed to be key. These sensory strategies used in this environment reduced this patient's physical staff restraint and sedation from two to three times daily to two to three times a week. I began to talk to colleagues about sensory strategies being used to reduce restraint and to aid emotional regulation. Another patient appeared to use head-banging to regulate their emotional state. I asked this person to use their hands to bang different surfaces explaining proprioceptive feedback. They were also able to use squishy toys to gain proprioceptive feedback reducing the need to head bang. I experienced, along with patients and colleagues, the effectiveness of these interventions in action on the wards.

In my own psychotherapy practice I have also used a sensory perspective and education when talking about emotional regulation. When people speak about not being grounded I have introduced exercises and education engaging proprioceptive feedback:

- suggesting clients use fizzy water or chewing gum to self-regulate.
- pushing their weight through their hands on their seats.
- body scans - a mindful practice – noticing what is happening from the top of the head following through to the toes slowly and carefully - to notice the effect of feeling ungrounded and the impact on the body.
- encouraging clients to understand their sensory seeking behavior and come up with their own sensory strategies and awareness.
- Some clients understand the need to go out for a walk prior to stressful meetings for instance to give proprioceptive and vestibular feedback.
- Using stretchy bracelets and hairbands to fiddle with during the session.

These interventions are used with an explanation to help clients to understand their window of tolerance and how interoceptive sensory awareness can help them stay within this window.

## **2. Literature Review**

In this chapter I will provide a critical and focused review of the research establishing the rationale for this study. The literature search terms are provided at Appendix 6.

I begin the literature review by tracing the importance of sensory integration to the field of psychotherapy and psychological practice. The review will be set in the context of developmental, affective neuroscience and sensory integration as it is understood at the time of writing. The field of sensory integration is in its infancy and as such knowledge many studies are small-scale and research areas are developing rapidly.

Sensory integration as a theory began to be developed in the 1950's, Ayres' first book being published in the 1970's (Coleman & Mailloux in Ayres, 2005). Only in recent years is research in the field beginning to adopt a systematic and rigorous approach determining the potential nosology and practical applications of the theory in practice (Miller, 2009). The collaboration between neuroscience, psychology and the field of sensory integration could be said to be in its infancy (Miller, 2017). I attended a presentation of a paper on the Clinical Implications of Neuroscience Research in PTSD in London, May 2015 by Bessel Van Der Kolk (Van der Kolk, 2006). During the presentation he said that one of his colleagues had built a sensory room for working with children with trauma. He then jokingly said that it would take a brave person to try and do this work with adults. This vignette describing a leading psychologist talking about sensory integration practice in 2015 perhaps indicates the novelty of the collaboration.

There is significant debate in the field as to the language used to define sensory integration differences that lie beyond the scope of this study. Sensory integration differences were identified for the first time as part of the diagnostic criteria for autism spectrum disorder, developmental coordination disorder and learning disability in the Diagnostic and Statistical Manual – 5 (APA, 2013). The strength of the existing research in this field could be said to have not yet met the critical mass required to bring it into mainstream practice and perhaps that it is not included in the DSM-5 as a disorder in its own right is a reflection of this despite many using this language and in practice. I use the terms as they are used in the literature and by the participants of the study whilst holding them lightly.

### **2.1.1 Sensory Integration Theory**

Sensory communication has been shown to be significant in human pre-history (McGilchrist, 2010) and during early developmental relationships between the infant and her environment (Beebe & Lachmann, 1998; Weller & Feldman, 2003). Sensation is what we can touch, see, hear, feel, smell and taste and how we respond to our environment in terms of time, space and gravity (Ayres, 2009; Dunn, 2005; Myles et.al, 2005). These senses guide us in understanding the world and how we orient our reaction to it. Each interpretation of a sensation is individual. Much of the processing done in our sensory systems is at an implicit level and remains out of conscious awareness (ibid.). The brain organises many sensory inputs and then gives meaning to the resultant inputs. As such sensory integration is a complex area to research from a psychological standpoint.

Ayres (2005) argues that when the flow of information is integrated and organised a person is able to learn and perceive clearly. When the sensory systems are not organised and integrated the experience can be emotionally and behaviourally disturbing (ibid.). Sensory integration is thought to be the brain process that organises information from our senses – sight, hearing, taste, touch, smell, movement, gravity and position in time and space. I outline each sensory system within the context of relational, inter-subjective, affective neuroscience literature in order to establish the foundation for this study. I acknowledge that these sensory systems appear to be functionally integrated at an unconscious level (Ayres, 2005; Miller, 2009 & 2017).

### **2.1.2 Smell**

Cozolino (2010) describes the importance of pheromonal contact between infant and mother. He argues for further research to consider the impact of smell on primary care relationships. Macfarlane (1977) showed that infants reliably distinguish maternal breast milk odour from another female. Odour appears to have a social function in establishing nurturing contact. It appears that the olfactory sense could be most important in the early days of infant life to establish connection with a primary caregiver (Schore, 1994). Schore argues that the olfactory sense is primary for the first year after which the visual sense becomes more important.

### **2.1.3 Visual Contact and Imitation**

Eye contact is indicated to prompt maternal nurturance (Schore, 2005). Eye contact and tracking of maternal features are thought to be influenced by the infant's proprioceptive and vestibular senses discussed further below (Ayres, 2005, Schore, 2005). Visual

sensory contact leads to the turn-taking dance of caregiver-infant imitation (Myowa-Yamakoshi et.al., 2004). Beebe & Lachman (1988) demonstrate mirroring showing visual contact and mimicking of smile state between infant and mother. Close contact at a visual sensory level leads the infant and mother to experience feelings of wellbeing (Schore, 2005). Endorphin and dopamine levels rise with close sensory contact (Cozolino, 2010) and fall with separation. Cozolino proposes that reflexes, which lead a baby to elicit intimate proximity, are generally lost a few months after birth unless there are cortical differences such as sensory processing disorder (ibid). These reflexes appear to remain immature in this population (Miller, 2016). Cortical differences in some populations lead to sensory processing differences. As voluntary control of space in the infant increases the developing cortex generally inhibits reflexes as social engagement develops (Cozolino, 2010). Voluntary control occurs through the integration of sight, sound – tone and rhythm, vestibular and proprioceptive senses (Ayres, 2005).

#### **2.1.4 Prosody**

The tone and rhythm of the maternal voice have been shown to be recognised within an hour of birth by an infant (ibid.). As the infant is able to recognise its primary caregiver through her sound and rhythm she is more likely to turn her head towards the caregiver. This early recognition system in the infant is thought to elicit greater eye contact between baby and caregiver. This in turn elicits feelings of well being for carer and infant (Cozolino, 2010). Stern (2004) argues communication between humans is made up of present moments like these lasting between three and ten seconds. The rhythm between these moments provides the hooks for successful social communication.

### **2.1.5 Touch**

As social engagement develops the importance of touch is increased. The skin is the largest sensory organ in the body. It contains two types of sensory receptor – one related to the manipulation of objects and the other which “activates the insula, anterior cingulate, and orbital medial cortex (Cozolino, 2010: 103) – or the social brain. In sensory typical infants light touch is said to increase oxytocin and endorphins (ibid). This hormonal reaction is thought to increase feelings of wellbeing. Touch is important for pre-term neonates and kangaroo care or skin-to-skin contact between primary caregiver and infant (Anderson, 1991). Increased skin-to-skin contact with midwife support has been shown to decrease infant crying, increase weight gain and infants are discharged to home earlier (ibid). Ayres (2005) proposes that tactile feedback creates a feeling of security in infants. Tactile sensations help a child to suck, chew and swallow (Ayres, 2005). Ayres argues that this sensory ability is important when creating contact between infant and caregiver. As such it can be supposed that touch is an important aspect of developmental regulation. Deep pressure touch such as massage has been shown to be important for physiological regulation and attachment (Cozolino, 2010).

### **2.1.6 Interoception - Internal Sensory Experience**

There are said to be two further interoceptive senses: proprioception and vestibular process. Despite growing focus on internal sensory experience in psychotherapy (Ogden et.al., 2006; Van der Kolk, 2014) vocabulary and practice engaging with sensation at the detailed level being explored by our cousins in occupational therapy appears to be limited (Ayres, 2005; Dunn, 2009; Miller, 2009).

### **2.1.7 Proprioception**

The Latin derivation of the word proprioception is 'proprio' meaning my own, or one's self perhaps suggesting how core to the aspect of self this process could be. Most of us take proprioception or our position in space and our relationship with time for granted. "Proprioception refers to the sensory information caused by the contraction and stretching of muscles and by the bending, straightening, pulling and compression of the joints between the bone" (Ayres, 2005:41). This is a challenging concept to describe and research as it is experienced individually (Ayres, 2005).

Kranowitz calls proprioception "internal eyes" (Kranowitz, 2005:136) and suggests that proprioception is the internal function that allows a sense of our body or body parts in space and time. When referring to this type of sensation in psychology I understand it would be referred to as 'groundedness' by psychological practitioners. How the body functions in time and space is critical to the human ability to function and yet little is understood about the impact (Delafield-Butt & Trevarthen, 2015). This aspect of psychotherapy is challenging to research but Negayama et.al. (2015) leading the way with their research innovations.

Ayres (2005) proposes that we constantly receive information in our brains that tell us about our physical position in the world. It is currently thought that most proprioceptive movement is processed in areas of the brain that do not involve conscious thought. For people with poorly organised proprioception these tasks become almost impossible without using vision (Ayres, 2005, Kranowitz, 2005 ). This can be experienced as disabling and can give a sense of disorientation and an embodied sense of felt insecurity (ibid). Postural insecurity can be as a result of disturbance in the vestibular system.



Kranowitz (2005) argues that it is the self-awareness that proprioception and vestibular process gives an individual that allows someone to become adept at functions such as sport or playing musical instruments. These abilities could be said to be integral to self-concepts such as identity making exploration of this field important for psychotherapists.

### **2.1.8 Vestibular System**

A functional vestibular system is something that many take for granted (Ayres, 2005). The flow of gravity through our bodies gives a reference point for all of the other senses. Ayres describes how in a functional vestibular system when the head is tipped to one side or another “gravity pulls calcium carbonate crystals away from their normal position in the head, and this changes the flow of impulses in the vestibular nerve” (2005:62). This vestibular input is required to function efficiently. In order for our brain to gain information about the environment our vestibular system coordinates with proprioception, vision and muscle and joint sensations. Vision is closely related to vestibular function (ibid.). Vestibular function regulates the ability to maintain stability in things that we look at. For instance letters on a blackboard may seem to “flutter” (Ayres, 2005: 64) if vestibular processing is inefficient. In a western society focused on an academic education system, understanding differences in sensory integration in this way is important when thinking about issues such as self-esteem (ibid). It could be said that exploration of sensory difference at the depth explored in occupational therapy could be important to understand constructs such as identity and the self in psychological practice.

### **2.1.9 Sensation and the Self**

Stern (1998) suggests that it is in the implicit, sensory realm where our core sense of self originates. The self is a western construct often used to describe the structure of the person alongside personality incorporating identity. This notion is extensively studied yet poorly defined in psychotherapy literature (Siegel, 1996). Definitions of self that include the bodily, interoceptive, felt sense, are complex and wieldy (Merleau-Ponty, 1958 originally published 1945).

William James (1981, originally published 1890) tackled notions of a pluralistic self, encompassing both ego or 'I' and the notion of a material self or 'me'. Part of this material self was the body, sensation and perception: "Pure sensations can only be realized in the earliest days of life...they are all but impossible to adults with memories and stores of associations acquired. Prior to all impressions on sense organs the brain is plunged in deep sleep and consciousness is practically non-existent. Even the first weeks after birth are passed in almost unbroken sleep by human infants. It takes a strong message from the sense organs to break this slumber. In a newborn brain this gives rise to an absolutely pure sensation. But the experience leaves its 'unimaginable touch' on the matter of the convolutions, and the next impression which a sense-organ transmits produces a cerebral reaction in which the awakened vestige of the last impression plays its part." James, 1890: chapter 18). James writing in 1890 appears to concur with Stern that our sensory selves are the pivotal building blocks on which the rest of our experience of self is built (Stern, 1998). Research evidence in psychotherapy and the field of sensory integration to support and integrate these ideas is lacking currently. Anecdotal evidence from experienced practitioners in perinatal developmental occupational therapy appears to support James' view (Ayres, 2005; Hill's 2013).

## **2.2 The impact of sensory context on the development of an optimal sense of self**

There is a growing literature in psychotherapy and occupational therapy about the importance of the *sensory self* for optimal development and identity (Delafield-Butt & Trevarthen, 2013 & 2015; Hills, 2013, Kaliartas et.al. 2014). Literature suggests that our early sensory and pre-language affective experience with primary caregivers provides the building blocks, upon which the structure of the person or the self is organized (ibid; Schore, 2003; Stern, 1998; Stolorow et.al.,1995). Sharing “regularly patterned acts of common purpose” – picking up the baby, feeding, cooing, cuddling etc. - forms the basis of the co-creation of meaning (Delafield-Butt & Trevarthen, 2013 & 2015; Negamaya et.al., 2015).

Stern views the self as multi-dimensional and complex (Stern, 1998). It appears that we develop a core (ibid) non-verbal, sensory self that is culturally embedded and embodied through early, developmental experience. Bromberg (1996) proposes that our sensory experience impacts how we conceive of our multiple selves intra-psychically.

Schore’ (2003) proposes that *how* the infant’s internal interoceptive sensors - feelings of hunger, temperature and distress are attuned to or not by the caregivers response - determines the development of the pre-frontal cortex and subsequent development of self. Ogden et. al. (2006) propose that the baby experiences her environment in three ways: cognitive, emotional and sensorimotor. However it is in the earliest infant stage that the sensorimotor and corresponding emotional experience is dominant (Stern, 1998).

These authors (Schore, 2003; Ogden, 2006 & Stern, 1998) place the sensory experience between the infant and her environment as central to development. This makes the

sensory experience of the individual therefore central to thought about developmental process in psychotherapy. Recent research suggests that the infant experiences herself sensually, symbiotic with the body of the mother in-utero (Delafield-Butt & Trevarthen, 2013; Hills, 2013) and the first twenty or so weeks ex-utero (Stern, 1998). Hills (2013), a specialist sensory integration, occupational therapist, suggests that the infant imbibes the flavour of the amniotic fluid, sounds and proprioceptive feedback through the pressure of the uterine environment from about twelve weeks post fertilization.

There is little research linking the fields of developmental affective (Miller, 2016) and sensory integration theory. A recent study by neuropsychologists Broring et.al (2017) found that “Sensory modulation problems may play a key role in understanding neurocognitive and behavioral sequelae in preterm children.” More studies of this type are needed to support the assertions made by the sensory integration community. Miller (2016) and Broring et.al (2017) support the call for more collaborative, cross-disciplinary study between neuroscientists and the field of sensory integration to develop knowledge in the field.

### **2.2.1 Sensory Integration Differences**

Merleau-Ponty (2002) suggests that sensation drives intention and underpins the experience of emotion. Understanding how the senses affect and disturb emotion is the bedrock of some psychotherapeutic practice (Ogden et.al., 2006; Van der Kolk, 2014). Learning how sensory difference is conceptualised within the context of sensory integration theory could be useful to psychological practitioners working within an inter-subjective developmental frame. How we pay attention and what we choose to ignore

either consciously or unconsciously is affected by how we take in sensory information from our environment (Aron et.al, 2010; Ayres, 2005; Bakker & Moulding, 2012; McGilchrist, 2010; Ogden et.al, 2006). Ayres (2005) and Dunn (2009), occupational therapists, articulate how for some individuals this sensory process is disrupted (Ayres, 2005; Dunn, 2009).

Shapiro (1995) suggests that sensation that has been organized through the process of motor planning is stored in memory and the body. This enables the person not to be overwhelmed by the sensory input. How people are able to use motor planning to store sensory experience is perhaps related to early in-utero and infant experience (May-Benson, 2009).

McGilchrist (2010) suggests that our relationships are dependent on the ability to inhibit, organize and modulate the automatic sensory responses we have to the environment (Van der Kolk, 2014 ; McGilchrist, 2010). He proposes that the right brain is closely linked to proprioceptive awareness and the physiological changes that occur in the body when emotion is experienced (ibid). McGilchrist (2010) suggests that the specialism in non-verbal, implicit communication that he argues as lying predominantly in the right brain is also said to be important for symbolism and metaphor. I hold these propositions lightly – in the same way that the triune brain theory has been largely discredited (LeDoux, 1998; McGilchrist, 2010) – neuroscience is challenging the notions of hemispheric specificity (Van der Kolk, 2005). The ability for symbolic thinking, empathy and metaphor appears to be lost in relational trauma, trauma and autism (Baron-Cohen, 2012; Van der Kolk, 2014). It is this link between the disturbance of sensory integration

and the loss of symbolic thinking, empathy and metaphor, which roused my curiosity and has been the impetus for this study.

### **2.3 Trauma and sensation**

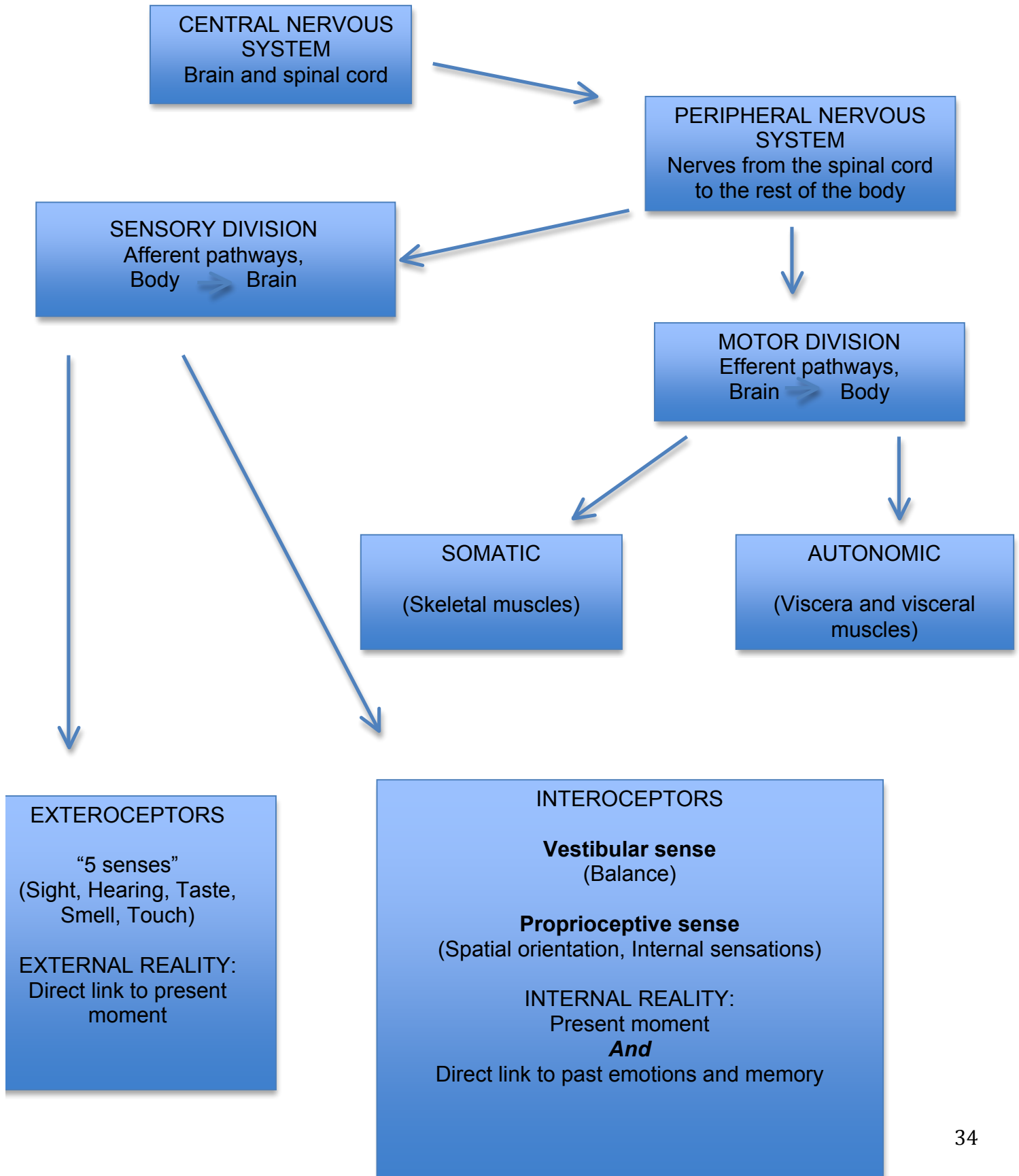
Ogden et.al. (2006), connect the sensory relationship between caregiver and infant with the laying down of memory, the somatic response and trauma. Early sensory relational derailments in attachment relationships can potentially impact the ability to cope with trauma and traumatic events (Garland, 2002; Ogden et.al., 2006; May-Benson, 2009). Sensory interventions have been researched and applied in psychiatric settings with client groups who have experienced trauma. Novak et.al. (2012) proposed that the use of a sensory room in a psychiatric environment provides significant reduction in distress and clinician rated anxiety. Their study found weighted blankets to be particularly useful for affect regulation. Champagne & Stromberg (2004) have demonstrated how using sensory approaches with patients diagnosed with trauma in an inpatient psychiatric setting can be an innovative alternative to seclusion and restraint. These are relatively small-scale studies and the authors acknowledge further need for research.

It was my own personal experience whilst working on an inpatient psychiatric ward that seclusion, violence and restraint in some patients could be reduced by using strategies such as: weighted blankets, understanding sensory seeking behaviours within the sensory integration frame, also exploring and education about the use of top-down strategies regarding personal sensory sensitivity.

Sensory disturbance is well documented in the trauma literature (Ogden et.al., 2006; Van der Kolk, 2005 & 2014). Trauma can impact both the physical, sensorial world and also an individual's internal mental and emotional world (Ogden et.al.,2006). If sensory cues experienced in the here and now are similar to those from the original trauma, here and now is potentially transposed onto there and then, squashing time and context (Van der Kolk, 2005 & 2014). This can result in a loss of symbolic thinking experienced as numbing or blankness (Bromberg, 1996).

This renders emotional arousal: fight, flight and freeze responses usually engaged in response to trauma impotent leaving flop or dissociation as the only option (ibid). Traumatic events are therefore experienced as overwhelming (Bromberg, 2008). Van der Kolk (2014) amongst others (Dunn, 2001; Bromberg, 2008; Rothschild, 2016) suggests that patients who present with trauma related disorders are likely to alternate between levels of hyper-arousal being overly sensitive to the environment and hypo-arousal wherein the body does not respond at all to the environment. Rothschild proposes that a great deal of traumatic memory is composed of bodily sensations that are processed via the "interoceptive nerves" (Rothschild, 2017:56) as shown in Figure 1:

2.3.1 Figure 1: (©Rothschild, 2000, 2016, 2017)





Rothschild's conclusion in working with traumatic memory and flashback is that engaging exteroceptive experience during psychotherapy is an important route back out of traumatic memory and into the present moment. Rothschild (2016) does not refer to interoception.

Steele et.al. (2017) state that techniques to manage arousal and retain contact with the therapist are important in working with traumatic memory so that an individual is able to retain temporal awareness. Dunn (2001) an occupational therapist suggests that for patients who have experienced trauma, sensory integration is affected. The nervous system appears to be unavailable for learning when in fight or flight mode (ibid). Rothschild (2017) suggests that when a patient is in this mode contact with self and others will be limited. The thinking part of the brain thought to be the frontal cortex will most likely be inaccessible and integration of traumatic memory would be unlikely.

**Figure 2.** Siegel (1999) offers a simple model to understand how sensory functioning is affected in people who have experienced trauma:

Increased sensation

Emotional reactivity

Hypervigilance

Intrusive imagery

Hyper-arousal Zone

Disorganised cognitive processing



Window of Tolerance

Optimal

Arousal Zone



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Hypo-arousal Zone

Relative absence of sensation

Numbing of emotions

Disabled cognitive processing

Reduced physical movement

In order to be able to organize thoughts, feelings and sensorimotor information Siegel suggests that managing sensorial experience is essential for the integration of the traumatic experience and memory.

Shapiro's theory of EMDR (1995) works on the assumption that sensory information is taken in and stored in memory without reference to language. "Trauma blocks the capacity of the mind to adapt by inhibiting the process of integration" (Siegel, 2003:xvi). This leaves traumatic events to be recalled through olfactory, gustatory, visual, auditory or kinesthetic sensory experiences in the form of flashbacks (Ogden et.al., 2006). This makes attention to sensory experience essential in the process of emotional integration. Steele et.al. (2017), state that: "Flashbacks are terrifying, fragmentary, and overwhelming experiences. Patients often are not present or able to be fully aware of what is happening. Integrative capacity during flashbacks is low, and patients are outside their window of tolerance". It potentially follows then that strategies to help clients regulate back into their window of tolerance more effectively would be useful. Rothschild (2016) suggests that people are brought back into the window of tolerance through paying attention to exteroceptive experience. This method relies on talking, listening and engaging the exteroceptive sense of sight or sound (Rothschild, 2016).

Ogden et.al. (2006) write about the disturbance of sensory experience and trauma. They outline the interplay of exteroception/interoception and internal psychological and emotional states. "We know that trauma has profound effects on the body and the nervous system...the recurring trauma related arousal continues to create a somatic sense of threat - a speechless terror" (Ogden et.al.,2006:xxvii). Mapping language is

beyond the scope of this study but Ogden et.al. propose that part of the work for the therapist when working with traumatized individuals is to guide the patient through their own sensorial world in order to understand their own peculiarities in terms of sensitivity, ‘traumatic distortions’ and helping them to recognize and reach their optimal arousal zone. This is similar perhaps to discovering where a person is on the “neurological threshold continuum” (Myles et.al., 2005: 9) in order to achieve effective sensory processing. This desire to help the client reach the position for ‘*just right*’ (Williams & Schellenberger, 1992) or the ‘*optimal*’ is perhaps similar to the goal of the programmes formulated by sensory integration specialists (Champagne & Sayer, 2003 ; Dunn, 2005; Wilbarger, 2002). Sensory integration theory offers potential solutions for this sensory management that are little discussed in the psychological literature currently. Van der Kolk, (2005 & 2014) Rothschild (2016) and Ogden (2006) give sensory solutions however do not make, as yet, explicit connections with the work of sensory integration theory and interventions.

## **2.4 Sensory Discovery: Principles of the Alert Programme™**

The Alert Programme™ is an example of one such sensory integration intervention (Williams & Schellenberger, 1992). The Alert Programme™ is one of several programmes used mainly with children but also with adults to make sensory preferences explicit. The authors of the alert program assert that in order to integrate and process information at an optimal level sensory detection needs to occur so that it is possible to determine “self-regulation”.

“Self regulation is the ability to attain, change, or maintain an appropriate level of alertness for a task or situation. Self-knowledge about sensory processing is empowering as sensory processing preferences can explain an individual’s response to particular environments, situations, activities and people”. (Williams & Shellenberger, 1996:1-5). It could be said to be important for psychological practitioners to more fully understand this aspect of being human.

Teachers and occupational therapists employ the Alert Programme to help some children whose sensory systems cannot make sense of the world in a sensory typical way. They employ self-regulatory strategies so that they are able to access learning. This understanding is also widely used within settings that are specifically created for people with learning disabilities (Baillon et.al., 2002). I hope that this research will help articulate how sensory integration theory could be integrated to aid accessibility to psychotherapy and psychological services. Sensory integration theory offers language, practice, methods of intervention and theory to help us grapple with the notion of a *sensory self* (author’s term). Sensory integration language, theory and practice is more integrated in children’s mental health context (Hughes, 2016).

## **2.5 Sensory Integration Interventions**

Sensory integration strategies in school settings are shown to positively influence behaviour (Bagatel et.al., 2010; Barnes et.al., 2008; Mac Cobb et.al, 2014a; Mac Cobb et.al, 2014b; Shanker, 2013). Studies in school settings indicate that more evidence is required to demonstrate the effectiveness of sensory interventions in reducing behavioural problems (Yunus et.al. 2015). Yunus et.al. (2015) cited mixed reports from various studies examining different sensory approaches. Many of the studies they cite showed that sensory strategies were indeed effective in changing behaviour.

Studies have also shown the benefit of sensory integration strategies applied in psychiatric milieu (Champagne, 2004 & 2011; Chinnock & Matson, 2013; Gardner, 2016; Martin & Suane, 2012). Preliminary research shows that sensory interventions can reduce the use of seclusion and restraint in inpatient settings (Champagne & Sayer, 2008). Champagne & Sayer (2008) reported that the use of a sensory room corresponded with a 40% reduction in restraint over a period of the year of their study. 89% of respondents involved in the pilot programme rated a positive effect of the interventions, 10% reported no change and 1% reported being adversely affected. Gardner (2016) introduced a variety of sensory interventions available for patients to self select over a period of six weeks. Gardner (ibid.) reported that the sensory interventions were effective in reducing individuals perceived level of arousal.

Brown et.al. (2009) indicated that arousal levels for people identified as having borderline personality disorder (APA, 2015) are consistent with those found in sensory processing disorder (Ayres, 2005). They concluded that borderline personality disorder may be

comorbid with sensory processing disorder, sharing “common neurobiological and functional roots” (Brown et.al., 2009:16). The twenty individuals that took part in their study were educated about sensory processing arousal and affect regulation. Their individualized sensory styles were identified and together with the researchers developed their own sensory soothing strategies from what they learned about their own sensory styles. Each participant carried their own sensory kits and sensory prescriptions about how to use their kits. Brown et.al. (ibid.) recommend that a sensory processing approach could be incorporated into and inform several modes of therapy including both creative (dance and movement) and dialectical psychotherapies. Their research supports the conclusion drawn by Champagne & Stromberg (2009) that sensation and sensory therapy is an individual matter and needs to be tailored accordingly. These are both acknowledged as relatively small-scale studies and more research is needed to confirm or refute these findings.

This individual, person-centred approach is evident in the literature outlining a developmental sensory approach to mental health therapy. May-Benson (2016) details an integrative approach towards dyadic infant and caregiver therapy and Greenspan & Weider (2005) also detail an integrative approach with infants. Many of the studies are related to infant and child sensory processing differences. Children’s occupational therapists and psychotherapists appear to be more open to collaboration: DIR – Developmental, Individual-Differences, Relationship based approach to therapy for infants and children and SAFEPLACE – a “collaborative sensory-integration based approach to treating trauma” (Greenspan & Weider, 2006; May-Benson, 2016: poster). Greenspan & Wiedner (2006) suggest that thinking about child development in linear and

fragmented ways is not useful. The biopsychosocial model adopted in this work with children could be useful when conceptualising psychological therapy across age groups. Miller (2009) argues that cross-disciplinary, collaborative studies will help to articulate sensory processing disorder and clarify clinical application.

## **2.6 Summary**

This brief overview of sensory integration in the context of affective neuroscience may suggest that sensory integration theory and its practical application could be useful to psychological practitioners. It is clear that occupational therapists may have interesting insight into sensory integration and the impact on developmental relationships that is not yet integrated into mainstream psychological practice and training. Some practitioners are already creating collaborative relationships across disciplines to better understand development and create improved access to psychological services (Greenspan & Weider, 2006; May-Benson, 2009). Sensory integration is viewed as a biological phenomena and most enquiry into the field is quantitative in nature (Ayres, 2006). This study is unique therefore in taking a qualitative, psychological approach to the enquiry into how occupational therapists use sensory integration theory and its practical application.



### **3. Research Aims and Question**

The aim of my study into this area is:

- to explore the inter-disciplinary boundaries between the psychological therapies and occupational therapy in relation to understanding the significance of working with sensory integration;
- to find the potential common ground between these two fields in order to inform knowledge and practice in the psychological therapies.

These aims led me to my question – looking from my perspective as a psychological practitioner with personal experience of sensory integration - asking experts in sensory integration from the field of occupational therapy:

*How can sensory integration theory, practice and tools inform psychological therapies and services?*

### **4. Methodology**

In order to answer this research question, I interviewed occupational therapists working as specialists in sensory integration, with a variety of clients including people identified as "looked after children", having been identified as having a history of trauma and attachment issues. As a psychologist and psychotherapist, I considered how their approach might inform practice in the psychological therapies.

In this section I give an explanation of my personal philosophical stance. I demonstrate

how this stance has led to the theoretical influences on my decision to undertake a qualitative study employing thematic analysis. I give an account of the research participants, sampling, sequence of the data collection, progression of the data analysis; case for trustworthiness; and ethical considerations.

#### **4.1 Epistemology**

Willig (2001) notes that methodological process is guided by the philosophical position of the researcher. This research is guided by the premise that my philosophical position is driven by my personal, clinical and political position (Hiedigger, 1962). I therefore adopt a reflexive attitude in an attempt to remain aware of my “contribution to the construction of meaning throughout the research process” (ibid:10). Fine (2002:12), proposes that “we select, edit and deploy (themes)” that back up our own arguments. I therefore attempt to make my own research position transparent to demonstrate my methodological choices as guided by this context (Finlay & Ballinger, 2006).

There are a variety of definitions for research ranging from “careful and diligent search” Merriam-Webster (2017) to “systematic investigation and study of materials and sources in order to establish facts and reach new conclusions” Oxford Dictionaries (2017). Psychological research as I understand it sits somewhere between these two polarities. Research is useful when it is a transparent, social process to achieve communication between an individual and a group of people. It needs to use systematic study with thoughtfully, defined parameters. I have elected to use qualitative study as it allows for this type of deeper enquiry into phenomena whilst allowing for an ethically transparent, subjective interpretation (McLeod, 2010).

Epistemologically I intend to be clear about my subjective interpretation and the personal context that influences my approach to the data. Using “epistemological reflexivity” (Willig, 2000: 10) I hope to position my data within the research currently available, therefore I intend to report ‘multiple perspectives’ and report findings that are contradictory to my own (Cresswell, 2013: 58-59). I intend to report findings that should be read as evolving, part of the picture and set in my own particular context as co-created with the participants of this study (Finlay & Ballinger, 2006).

Acknowledging my own subjective stance in this process I take an Aristotelian approach that learning is based on lived experience (Howard, 2000). I acknowledge and indicate the subjective contributions of my own history (Lorenz, 1977). I had the intention of making my position as clear to both participants in the short time we had meeting each other as I have done for my readers. I understand the process of research to be a co-constructed endeavor between the examined and examiner, the writer and the reader and therefore take an interpretive, social constructionist perspective (Charmaz, 2014). This epistemological position led me to a methodological approach to research, which allowed for transparency in the process and remained grounded in the data (Spencer & Lewis, 2003).

Fitting with my epistemological stance (Carter & Little, 2007) to gaining knowledge thematic analysis offered me a focused, systematic but flexible approach to data collection and analysis (Spencer & Lewis, 2003). This methodology is particularly suited to studying human process in a pre-defined sample – for instance professionals - attending to both language and action. The goal of this study is to generate an

informative, practical theoretical thematic analysis moving towards developing a theory.

## 4.2 Ontological Approach

Creating concepts is part of the story but “concepts without intuitions are empty, intuitions without concepts are blind”. (Kant, 1992). My ontological stance sits alongside McGilchrist (2010) who suggests that the essence of humanity is the ability to inhibit the desire to conceptualise whilst holding that concepts are important for survival. Thematic analysis allows for movement backwards and forwards between the researchers intuition and the data. “Devising and refining a thematic framework is not an automatic or mechanical process, but involves both logical and intuitive thinking” Srivastava & Thomson (2009: 76). Links can be created both across and within cases in finding themes (Ritchie & Spencer, 2004). This involves the researcher using their own history and judgment to define meaning and work out the “implicit connections between ideas” Srivastava & Thomson (2009: 76). Using thematic analysis and remaining grounded in the data allows for transparency in this process (Ritchie & Spencer, 2004). Thematic analysis is a method for identifying, analyzing and reporting patterns within and across data (Braun & Clarke, 2006).

During the process of the research I have been open to new ideas emerging. In creating an inquiry that incorporated both planning, boundaries and reflection – an Apollonian inquiry – with a Dionysian approach allowing for more spontaneity, imagination and expression for participants and myself as researcher (Heron, 1997). This attitude is perhaps akin to the notion of attachment (Bowlby, 2010) wherein optimal development is

thought to occur through having sufficient boundaries whilst allowing for freedom and creativity. Braun & Clarke (2006:78) advise “clear and concise guidelines” help strike the balance by explaining but not dictating how research should be carried out.

I am a feminist, by which I mean I pay attention to individual differences in context (Adichie, 2014) interpretivist (Braun & Clarke, 2006, 2013) researcher and believe that this piece of research stands in my personal context and that of my participants. Both verbal and nonverbal responses between researcher and participants could be understood as driven by our own previous experience of relationships (Atwood & Stolorow, 2012). Listening and responding therefore can be seen as a relativistic (Finlay, 2006), co-regulating creative act of bi-directional influence as in Heidegger’s (2005) notion of care.

#### **4.3 Selecting Thematic Analysis**

It was important to me therefore to employ a method that could address the tacit assumptions (ibid) in the data and catch co-created moments between myself and the participant in order to develop depth in understanding (Ogden, 1994). My natural fit philosophically was auto-ethnography (Ellis, 2005). There were issues for me concerning confidentiality using this method that I could not overcome. This led me to look at a phenomenological approach such as Interpretive Phenomenological Analysis – IPA (Smith 1999). The epistemological stance of this approach requires that the researcher makes their assumptions clear and brackets them. Bracketing is a method used by some researchers in the hope that through the process of identification unacknowledged

preconceptions can be engaged with more robustly. The intention of this process and subsequent bracketing is to increase the rigour of the project. However I join the scientists (Hiedegger, 1962) “who reject the notion that humans even have the capacity to bracket out preconception” (Tufford & Newman, 2010: 4). The hermeneutic approach of IPA did not fit with the pragmatic, integrative, feminist approach (2014) I chose to take because I did not feel I could simply bracket my prior experience and learning.

I then settled on Framework (ibid.), which is similar in approach. However following attendance at my research approval panel presenting this methodology. It was recommended that I consider the mapping exercise that I had proposed. I reflected that mapping would be compromised by my purposive, data sampling strategy and would contradict my using this approach. In reality Framework proved to be too constricting and I felt I was becoming more preoccupied with the research strategy than the research question.

Content analysis could be said to be similar to thematic analysis but is concerned with dimensions such as the quantification of data, which could be seen to be regarding prevalence and therefore significance (Vaismoradi, 2013). As I am researching an area of human complexity in a qualitative manner it was not appropriate.

In consultation therefore I selected a qualitative, thematic approach to inform my data collection (Srivastava & Thomson, 2009). Being pragmatic I was drawn to the simplicity

that thematic analysis offered. No one person seemed to lay territorial claim to it. Thematic analysis allowed the freedom for creativity and the analysis of implicit process (Spencer & Lewis, 2003). It appeared to offer a method for “analyzing and reporting patterns (themes) with data” (Braun & Clarke, 2006:79) and a way of leaving the data to speak for itself. It felt like a comfortable fit (Ritchie & Lewis, 2003) for my ontological and epistemological approach.

## **5. Method**

### **5.1 Participants and Sampling**

#### **5.1.1 Purposive Sampling**

I used a purposive sampling strategy to select participants fulfilling pre-designated criteria (Suzuki et al, 2007). My initial selection of participants was “purposeful and sought out” (Polkinghorne, 2005: 140). This strategy developed through necessity into a snowballing then “chain sampling” process (Ritchie et.al., 2014: 129). I selected and invited participants according to their field of knowledge and expertise (ibid.). This sampling strategy did make for heterogeneity in the process and findings as one of the participants practiced in the United States and had experience and resource to work psychodynamically with psychotherapy colleagues. The study was conducted with six occupational therapists, trained experts in the field of sensory integration.

### 5.1.2 Participant Criteria

There were several ways I considered criteria for sampling participants. One approach was to consider occupational therapists with psychotherapy training. The question of which occupational therapists and what type of psychological training could be considered as psychotherapeutic proved complex.

Arising from attachment and intersubjective theory there are psychotherapists who are interested in the sensory aspects of regulation (Ogden, 2006; Van der Kolk, 2014). These psychotherapists identify as being sensori-motor psychotherapists. These therapists I understand to conceptualise themselves working with the pre-verbal, sensory-infant as expressed as if in time present in the adult. This approach will inform my discussion. However I decided that these professionals would not be most suited to respond to the question from a practical - hands on, sensory integration focused theoretical or practical perspective as sensory integration theory and practice is not their core training

There is a group of occupational therapists, specialists in sensory processing disorder and Jean Ayres sensory integration theory who work mainly with children, some with mental health issues. This group of therapists advertise themselves as: “sensory integration therapist who have training in DIR/Floortime”, “experience of DIR/Floortime”. Some sensory occupational therapists (May-Benson, 2016) integrate their sensory practice with psychotherapy (Hughes, 2016). This SAFE PLACE approach incorporates attachment and intersubjective theory with a sensory-based approach (May-Benson,



2016). Some practitioners have used their occupational therapy training to engage with mental health populations (Champagne, 2009). There are practitioners who work in this way in the UK but none were available at the time to take part in the study. The first participant from the US fulfilled these criteria. Through analysis and reflection on the data collected from the interview with this participant my criteria were revised once again.

I therefore approached occupational therapists that identified as experts in sensory integration.

In broad terms I had hoped that my question could begin to answer simple contextual questions. In this way I had hoped to identify the form and nature of the integration of sensory integration theory and psychological therapies. I had originally wanted to map the types of therapists and their experience. The intention was that the study could begin to understand the nature of practitioner's experience of this integration. It became obvious on reflection that this was too ambitious (Ritchie and Spencer, 1994). Through beginning to understand the nature of each practitioner's experience I had hoped to be able to define potential concepts through the systematic study of the data collected. This process could be achieved by keeping the population under study homogenous but I could see that taking this route would be too complex and would need a bigger study perhaps even quantitative.

In order to answer my question I made a reflective decision regarding the sampling of the participants for the study (Suzuki et.al, 2007). As I understood it my question and methodology were well suited to an exploratory study. I had thought that it would be a

challenge in the UK to reach saturation with one of the groups as there are not enough practitioners working in one particular way – the field appeared to be fairly disparate at the time of writing.

Focusing on occupational therapists trained in sensory integration meant that I could gather the themes that were important to them. This meant that there would not be sufficient breadth, to map data adequately – I realized this precluded grounded theory and framework as research methodological options. In order to map concepts and explore themes I would need to keep the sampling criteria broad, which was simply not possible, nor desirable in achieving an answer to my question. I decided that it was important to reflect the changes in sampling in my question. Therefore the question became specific to occupational therapists, who self-classified as sensory integration experts viewed from my personal and psychological perspective.

I therefore invited participants according to their training in occupational therapy and expertise in sensory integration. I anticipated that using this narrow population would produce data answering my question, which after all was the point (Haverkamp & Young, 2007). Suzuki et al (2007) point out that a purposively selected sample is the one from which most can be learned. In the process of being purposive I needed to be selective and pragmatic. This did not mean simply resorting to “convenience sampling” (Polkinghorne, 2005:141). The data collected needed to produce evidence about the experience under study. I simplified the criteria to occupational therapists with expertise in sensory integration practice, techniques and theory in order to fulfill the research question.

### 5.1.3 Participants

All participants selected were experienced practitioners. All of the practitioners were female and ran their own private, paediatric, sensory integration, occupational therapy businesses some alongside NHS and school commitments.

|                                     | <b>Context</b>   | <b>Current Client Groups</b>  | <b>Time<br/>in field</b> |
|-------------------------------------|--|---|--------------------------|
| <b>Participant<br/>1<br/>Sally</b>  | USA<br><br>Occupational therapist<br><br>DIR/Floortime   | Parents and children<br><br>Supervisor<br><br>Lecturer<br><br>Consultant nationally and internationally | 15                       |
| <b>Participant<br/>2<br/>Hayley</b> | UK Highly specialist Occupational Therapist<br><br>Author<br><br>National Autistic Society Speaker<br><br>Trainer<br><br>Sensory Integration Therapist | Private Practice<br><br>Specialist school support<br><br>Author<br><br>Lecturer                         | 26                       |

|   |   |  |           |
|---|---|--|-----------|
|   | <p>Therapeutic Listening<sup>®</sup> and neurodevelopmental techniques</p> <p>Clothing adviser to design and create school uniform for children with ASD for a large clothing chain.</p> <p>Personal experience of sensory issues</p> |  |           |
| <p><b>Participant</b></p> <p><b>3</b></p> | <p>UK</p> <p>Occupational therapist</p> <p>Sensory Integration Therapist</p> <p>Inventor</p> <p>Personal experience of sensory issues and Rhett Syndrome</p>  | <p>Children</p>  | <p>40</p> |
| <p><b>Participant</b></p> <p><b>4</b></p> | <p>Trained in South Africa but currently practices in UK</p> <p>Occupational therapist firstly in Acute Adult and Child Family Mental Health</p> <p>Bobath technique</p>  | <p>Specialist Paediatric NHS Provision</p> <p>Private practice</p> | <p>38</p> |

|                          |   |  |    |
|--------------------------|---|--|----|
|                          | Sensory Integration<br><br>Therapeutic Listening Programme<br><br>Wilbarger Therapressure Protocol<br><br>Sequential Oral Sensory programme |  |    |
| <b>Participant<br/>5</b> | Occupational therapist<br><br>Therapeutic Listening   | Children<br><br>Community Health<br>Service<br><br>Trainer | 20 |
| <b>Participant<br/>6</b> | Occupational Therapist<br><br>Sensory Integration Therapist   | Paediatrics<br><br>Author                                  | 20 |

### 5.1.3.1 Participant Recruitment

After being granted ethical approval for my study from the Metanoia Institute Research Ethics Committee (Appendix 5), I wrote to individual therapists to invite them to take part in the study. If they were not able to take part themselves I asked them to recommend someone who they felt would fulfill the sampling criteria. In the latter stage of the study I gained participants by asking each person engaged in the study to recommend another. This method worked well although I was concerned that for five of my participants at least

that I was fishing in a small pool (Suzuki et. al.,2007). Suzuki et.al. (ibid) warn that the “act of collecting data is inherently complex”. The title of their paper “the pond you fish in determines the fish you catch” comes from an African proverb. They use this title to remind researchers that data collection is an intentional process.

I felt that there was no need to widen the net as I was undertaking a qualitative study and made my challenges explicit. The narrowing of the population was desirable and intentional for the purposes of my question (Polkinghorne, 2005). The first participant from the US recommended a UK connection and the contact with the other five practitioners flowed from there.

## **5.2 Data Collection**

I used loosely structured interviews. Interviewing six professionals allowed for a variety of perspectives in addition to my own (Ritchie & Spencer, 1994).

### **5.2.1 Interview Guide**

In my role as researcher I felt that it was important to develop a good rapport with participants. I therefore did not want to stick rigidly to an interview schedule frequently consulting a questionnaire that might disrupt the flow of engagement. Using a thematic approach to the data being collected I wanted to gain data that would help me describe from a psychological perspective how practitioners were using sensory integration theory and tools to inform their practice (McLeod, 2010). I therefore held some questions that I used more as an aide memoire (appendix 5) to prompt me if the interview was not

flowing or to get us back on track.

I attempted to be open to be influenced by each participant as to the direction the study went. In training we were encouraged to be “open to surprises” (Orlans, 2012) and this was a phrase that impacted my approach to interviews and the research. I think this concept is similar to McLeod’s “presuppositionless” (McLeod, 2010:75).

I used loosely structured interviews to collect the data, not having defined questions but introducing topics through vignettes of personal experience or experience in practice that I had identified to be of potential clinical interest. I hoped that this would allow for creativity whilst holding a frame for the enquiry (Spencer & Lewis, 2003). My aim was not to learn how much or how often something was happening but to deepen understanding about how sensory integration theory and tools were being applied by the participants in the study (Polkinghorne, 2005). As this was an iterative process the questions were adapted and changed as the study went along (Polkinghorne, 2005).

Historically research participants were ‘done to’ with the power lying clearly with the researcher. There is a greater move to understand therapy and research (Heron & Reason, 2008) within the context of the relationship (Benjamin, 2003). This moves research from the realm of the I-It and the notion of expert, to a two-person psychology and the I-Thou (Buber, first printed 1937, 2010; Casement, 1993; Winnicott, 1971). In practice during the research, I translated this theoretical position by introducing myself

revealing my personal connection to sensory integration theory, my own clinical experience and training.

### **5.2.2 Interview Process**

As a psychotherapist I use the data a client brings in terms of their words or gestalts, bodies and my own countertransference to create concepts in my mind. The concepts arise through the linking of my embodied sensory experience, abstract ideas arising in conjunction with words and my own history of ideas. I then use the session with the client to test the concepts between us to create a deeper understanding – incorporating an integrative, intersubjective approach to thematic analysis. I have attempted to transfer this sensitivity (McLeod, 2010) and these skills, processes and training to the relationship with the research participants and the data. This allowed me to conduct the interviews in depth in order to gain new insight (ibid). My initial contact was by email for the first participant. This participant then recommended the next participant who I again first contacted by email. Once contact had been established I followed up with a phone call to schedule a recorded meeting.

The meetings took between one to three hours. This allowed for time to generate “information-rich data” (Polkinghorne, 2005:140) During the discussions with the participants I attempted to collect detailed data linking the worlds of sensory integration theory and psychotherapy.

In the interviews there appeared to be a ‘sharedness’, perhaps Stern (2004: 168-176)



would call them “moments of meeting”. In these moments both myself and the participant appeared to be equally engaged, identified and interested in each other. These moments seemed to drive the interviews forward in a certain direction. Rather than attempt to remain separate from these moments where we both seemed as if we “got it” (Zoe) - I attempted to empathise whilst developing the understanding between us further (Ogden, 1994). In psychotherapy this would be viewed as using the third position (ibid) – separate whilst identified and developing beyond that which we each alone understood. We could be seen as generating new knowledge between us (Legard et.al., 2003).

I mostly travelled to the participants. Two participants met me in their therapy rooms, which meant that the process became experiential being introduced to their sensory equipment (shown in appendix 1) and environment as well as the verbal interview. I travelled to another participant’s home sensory studio and two came to my office. The first participant was in the US and we used Skype as a meeting platform. I recorded the data from all of the interviews using three recording devices laid out between us.

### **5.3 Data Analysis**

After each interview I transcribed the recordings and read them through, immersing myself in the data, the first stage of familiarization with the data in thematic analysis (Braun & Clarke, 2008; Ritchie & Lewis, 2003).

My personal experience of sensory integration issues informed my work as a practitioner with patients with complex trauma and this in turn informed my research approach. This

iterative experiential process informed my interaction with the research participants and influenced the data collected. I made this process of “coming to know” (ibid) as conscious as possible by transcribing each interview prior to interviewing the next participant to identify initial codes and areas that I felt were useful to explore in more depth. At this stage I read through the transcript a couple of times prior to attending the next interview. I used a paper and pen highlighting semantic and practical themes. This was an iterative process to deepen my understanding about how occupational therapy practitioners were using theory and practice to inform their work (Polkinghorne, 2005).

Initial codes and concepts were identified in this way and translated into areas of interest to be discussed at the next interview (Spencer & Ritchie, 2004). After this initial thematic analysis to create codes the data was then examined further to create themes (Braun & Clarke, 2006; Spencer & Ritchie, 2004). By the third interview patterns were becoming apparent in the codes. At this stage the data was sorted into themes according to the initial concepts that had been identified.

Each main theme and subtopic was sorted with the use of a software package NVivo. NVivo supports a detailed, in-depth and spontaneous approach to analysis. The programme supported the process of managing the data and ideas (Bazely, 2007). This enabled a fluid type of coding, which was suited to my data analysis (Williams et.al.,2004). The drag and drop facility let me order and reorder the codes until two main themes with sub-themes were identified. This ordering and sorting of the data allowed me to identify themes within and across the participant data. Each coded item was collated according to participant and theme. The data charted was clearly identified and

case specific (Srivastra & Thomson, 2009). Finally the data was analysed and interpretations made during the process were made explicit.

#### **5.4 Ethical Issues Arising**

I submitted a research proposal to the Metanoia Institute programme approval panel. Checking with a group of respected professionals to help me consider any ethical issues arising was part of ensuring the ethical standard of this project. I adhered to Metanoia Institute Ethical Guidelines (2017, 2018), UKCP and BPS ethical guidelines for research (BPS, 2018). I have been part of MREC (Metanoia Institute Ethical Research Committee) partly to learn as much as possible about conducting research ethically. I used this forum on occasion to reflect on and consider ethical issues arising from my study. I endeavoured throughout the research process to consider and be sensitive to issues of power, cultural differences, religion, gender and disability (ibid.) I kept notes recording my sensitivity.

I attended research supervision and continued personal therapy to help me work through and develop my reflective capacity about issues as they arose. I kept notes on this process and used the writing process to enrich my reflections (Bolton, 2005). This therapeutic process was particularly useful when considering participant sampling and considerations of the influence of power and difference in academia.

As a counselling psychologist and psychotherapist in training and a qualified integrative clinical psychotherapist (UKCP,2015) I felt that I was sensitive to distress and able to effectively evaluate when additional support was potentially required. All participants had

my email address and telephone number so that they could make further contact should they wish to do so. I had a list of qualified psychotherapists that I could pass on to participants should they be required.

I have attempted to operate from a position of clarity during the process of data collection. Participants were made aware that they were participating in a study both verbally and through means of a letter, which they signed to indicate their agreement to take part in the research process I informed each participant of the requirement in terms of time – between one and three hours. I tried to stick to the time parameters as agreed. I gained approval for this research from the Metanoia Institute Research Ethics Committee and include the letter of approval (Appendix 4).

I have not created composite characters and was not requested to do so. I wanted to remain as close to the narrative and value each individual and their reported experience of practice. In order to achieve this I have used participant verbatim narrative in the findings section only removing hesitations and colloquialisms. This was in an effort to enable transparency in the research process (Ritchie & Spencer, 2004). I hope to have given as full a picture as possible of the experience of the participants (Cresswell, 2013, Ellis, 2004). It was made clear to participants that they could choose to withdraw their data and input up to three months before anticipated submission.

## 6. Trustworthiness

In researching an area of personal and professional interest I have taken measures to ensure the trustworthiness of the data collection and analysis. I was open with the participants in the study about my own subjective history, stance and knowledge that I was bringing to the study. By remaining open about my assumptions with participants I hoped to create an additional opportunity to monitor my own assumptions. Mendizabel et.al. (2014) suggests: “to collaborate across backgrounds, disciplines and organisations there have to be elements in common shared by all... the most promising teams are those that engage with each others’ skills and experience and take full advantage of their coming together.” I feel that my personal experience gave me insight into this area and was an advantage in cross-disciplinary communication.

Although I was open about my understanding with participants, I asked them to explain words and terms (Dwyer & Buckle, 2009). This was in an effort to ensure that I fully understood without making assumptions of shared understanding. I attempted to adopt an open position to the enquiry. I saw this as a process similar to that which I recognize as empathy from a psychotherapeutic, clinical perspective (Rogers, 1963). I acknowledged that I was coming from a different perspective as a person with personal experience of sensory integration differences and psychological practitioner. I kept reflexive notes about this experiential aspect. I took these journal excerpts to research supervision to help capture any assumptions.

I propose that this piece of work has *value*, as it will be written from an experiential, creative and transparent position: “the scientific activity is deliberative, democratic sense

making among professional researchers and local stakeholders and these are linked to solutions tested in action". (Greenwood & Levin, 2001: 105 ). Nowell et.al. (2017:2) identify the key advantage of thematic analysis to be in developing "unanticipated insights" rather than searching for a truth or theory.

Modern logic endeavours to preserve truth. As I would see each sensory integration practitioner as an individual that I would be in relationship with during the research process, I did not see that I could ascertain validity in a traditional sense (McGilchrist, 2010). I viewed the meetings from a relativist, co-created perspective (Ogden, 1994). Validity is a logical term, for me, belonging perhaps to mathematics rather than the study of the mind in connection with the body. I agree with Wolcott's view that to focus on validity would distract from the work of understanding the phenomenon as it is (Wolcott, 1990). Denzin & Lincoln (2000) recommend that the positivist assertions of validity could be replaced by ideas such as "credibility, transferability, dependability and confirmability" (ibid: 21).

### **6.1.1 Credibility**

I familiarized myself with the data after each interview. By engaging in this iterative process (Polkinghorne, 2005) I hoped each interview would build depth of knowledge increasing credibility, adding a layer through which my assumptions and biases could be challenged and captured (Denzin & Lincoln, 2000). After the first two interviews I discussed some of the codes and findings with my supervisor. Post it notes stuck on the wall around my desk held initial codes. They were the key to my development of initial codes, which were then collated into a mind-map that I shared in clinical supervision to

develop my thoughts about possible clinical application. In personal therapy I processed how the theory was being applied by the occupational therapists. I sent emails to myself when experiencing challenges or difficulties in the process so that I could monitor any latent themes arising in the process of the research – I reflected on these in both therapy, clinical and research supervision. I also took excerpts of coding to research supervision checking for any blind spots in the way that I was coding. These aspects informed tentative themes that I took to the next participant research interview where my understanding could be checked and deepened.

During the process of interviewing I adopted an empathic stance searching the language used by the participants. This was an attempt to address the “fit” (Nowell et.al, 2017:3) between the participant’s views and my representation of them. I took care not to make assumptions about language and as fully as possible represented the participants view. I realized the limitation of this study as being unable to map language. This study simply indicates the beginning of this process by recognising some of the challenges.

All of the interviews lasted for at least one and a half hours – some stretching to three hours. Nowell et.al. (2017) suggest that prolonged engagement establishes credibility. I have had prolonged engagement with the topic through personal and professional experience and spent many hours gathering data from participants. After the first two interviews I checked findings and initial coding with my supervisor in order to gain an external check on the process (ibid.).

### **6.1.2 Transferability**

I have used as much verbatim content in the as possible so that the reader is able to determine transferability. I have used “thick descriptions” (ibid:3) both in the findings and discussions section.

### **6.1.3 Dependability**

In order to convey dependability (Denzin & Lincoln, 2000) I have been clear about my ontological and epistemological stance. I have been open about my personal connection to the research topic and have endeavoured to use this connection to increase depth of discovery. I have provided an audit trail giving examples of my data analysis (appendix 2) and transcripts held in NVivo (appendix 3) in the appendices (Nowell et.al., 2017). I presented my research to peers in training, to my clinical supervisor and twice in MREC meetings I attended. This helped me to reflect on the data. Some elements were surprising to me. I had not expected to find a disconnection between OT and Psychology. I also found a part of my therapeutic self that I had not expected to find in the form of a humanistic stance. That I was open to personal and professional development I hope helps demonstrate that I was open to the data influencing me as well as acknowledging my influence on the data collection and analysis.

### **6.1.4 Confirmability**

I take an Aristotelian approach suggesting that there is value to considering personal experience and exploring that experience through reflexivity (Ellis,2004). I demonstrate my reflexive process giving a table in appendix 2 showing an example of transcript, patterns noticed and an example of the connections I held in mind at the time. These



patterns were checked in research supervision to help develop the data to find new insight and creative engagement.

I have attempted to meet these criteria throughout this study meeting the last criteria from a relativist position in as much as it will be my sense of reality. I have outlined my position clearly, telling the reader how I have approached the study: practically, emotionally and cognitively (Braun & Clarke, 2006). In this way I hope to help the reader “in understanding the interaction between the perceiving subject and the perceived object, between the ‘instrument of knowledge’ and the ‘object of knowledge’” (Lorenz, 1977:94). In this way I hope to account for my own role in this research to demonstrate that the findings and interpretation are consistent, systematic and relevant (Finlay & Ballinger, 2006).

Heron & Reason (2001) suggest a way of being in the enquiry process that can perhaps be conceptualized as holding an “evenly hovering attention” (Freud, 1941). Adopting a reflective, open stance engaging reflective capacity (McGilchrist, 2010). Openness between myself and participants, dialogue, supervision and collaboration will offer checks and balance to this process. By transcribing each interview as I have gone along allowed for ideas and concepts to be checked with the next research participant. This allowed for ideas to be deepened and extended (McLeod, 2010). Benjamin (1995) proposed the notion of the third, which I think is really useful when exploring sameness and difference and finding themes. I use this method of observing myself and my client from a third, reflective position in clinical practice and have tried to adopt this method throughout this

study (ibid; Ogden, 1994). As such this methodology could be seen as an intersubjective thematic analysis and therefore hybrid and integrative.

When engaging with each participant at the beginning of the interview I particularly focused on my introduction. I felt the initiation to the process of research was important to give context (Heron & Reason, 2001). I gave a full and personal introduction to each participant explaining my relationship and personal positioning with regards to the topic.

## **7. Data Analysis**

At the end of the first interview I transcribed the recording manually. After reading the transcript several times I attempted to capture the essence of each section of data (Braun & Clark, 2009).

### **7.1 Patterns of Meaning: Creating Codes**

The section was sometimes a word, sometimes a line and sometimes a paragraph (Saldaña, 2009). I made a note of each code in the margin of the text (Appendix 2). After the second interview I downloaded NVivo and set it up using the initial codes to inform the nodes and sub-node facility (Appendix 3). Using this feature I gradually began to develop an understanding of the patterns and areas of potential interest from my initial reflections following the interview (Braun & Clarke, 2009).

I repeated this process for the other four interviews. I studied the nodes representing the different codes and began to consider initial themes. I created two “initial thematic map(s)” (ibid:90) and used clinical supervision to reflect on the clinical significance of

these as main themes. I reduced the nodes further by amalgamating similar sub-nodes. From this data I produced a list of “developing themes” (ibid:90), which I reflected on with my research supervisor. After this process examining the nodes in Nvivo it became apparent that there were three dominant themes in the data.

## **7.2 Outsider/Insider Complexities**

During the ethical consideration process I did not anticipate some of the challenges that would arise for me as a researcher attempting to cross complex interdisciplinary and personal boundaries. In my personal experience I gained new learning in sensory integration treatment week after week for months. Being personally involved did not stop me attending the sessions as a clinician and researcher. I think that through this process I received an experiential training (Kolb, 2008) in sensory integration. Although my clinical training has allowed for me to be an integrated practitioner I am realizing that this is not the case for others.

Following my informal training in sensory integration I attended formal sensory integration training and read extensively around the subject. My experiential training experience one to one with sensory integration specialists had no value formally in my clinical context. Despite formal training in sensory integration my experiential training felt the most valuable in terms of my insight. I sat as an outsider on many different levels to the field whilst feeling like an insider also at many different levels - it was a complex balance (Dwyer & Buckle, 2009).

Throughout the process of research this has formed blocks to my stepping into my own authority as a clinician trying to research in this area and integrate this knowledge into my own practice. Looking at the other as professional and as 'expert' and myself as 'less than' was a tension I had to explore. I continue to do so and hope that the discipline of Counselling Psychology and Psychotherapy will also reflect on how students researching outside their discipline can be supported.

As part of this outsider experience I came up against struggles to communicate within my own discipline. Much of the research I used to build my integrative model is acknowledged and integrated into the world of sensory integration and occupational therapy. On the sensory integration trainings I attended they included authors like Stern, Lachman and Trevarthen – core authors in my own training - in the bibliography to the training manuals. The occupational therapists trained in sensory integration appeared to have some sense of what I was talking about. However when I tried to use sensory integration language with gatekeepers in my own training I found that I was regularly misunderstood and rejected.

The process of sameness and difference has been studied by many over the years in the context of gender differences (Benjamin, 1995) and aggression (Lorenz, 1973) but perhaps not in the context of research. Benjamin (1995) proposes that is important to hold the tension between sameness and difference in order to develop. In research practice I found this tension hard to hold and often lonely and isolating. Coming from a different perspective was challenging.

## **8. Findings**

Analysis of the six participant interviews resulted in three master themes and their component sub-themes as shown in table 1.

The focus of this chapter will be to investigate these themes. Each theme will be illustrated with a selection of verbatim quotes from the transcribed participant interviews. To aid the readability of the quoted excerpts I have removed the characteristics of speech such as utterances, repeated words and hesitations. I have replaced colloquialisms and unrelated data with ellipses. To make sense of some verbatim speech I have added my own words in brackets. Pseudonyms have been used for the purposes of confidentiality.

### **8.1 Overview of the Findings**

There were three main themes indicated from the analysis:

1. Sensory regulation and emotional regulation entwined.
2. Tools and strategies to ground, calm, regulate and organise to engage thinking.
3. Disconnection between occupational therapy and psychology.

Shown in the table below with consequent sub-themes.

**Table 3: Main Themes and Sub Themes Indicated from the Analysis**

| <b>Main Themes</b>  | <b>Sub-Themes</b>   |
|---|---|
| <b>8.2 Sensory regulation and emotional regulation entwined</b>                           | <b>8.2.1 Immersed in Individual Differences</b><br><b>8.2.2 Creativity and Difference Embedded in the Culture of Sensory Integration Practice</b><br><b>8.2.3 “Meltdown” – Sensory Dysregulation</b><br><b>8.2.4 Sensory Modulation and Trauma</b><br><b>8.2.5 Where is my Body in Space?</b>                                   |
| <b>8.3 Tools and strategies to ground, calm, regulate and organise to engage thinking</b> | <b>8.3.1 Proprioceptive Strategies</b><br><b>8.3.1.1 Breathing for Interoceptive Modulation</b><br><b>8.3.1.2 The Wilbarger Protocol</b><br><b>8.3.1.3 Squashing and Body Resistance</b><br><b>8.3.1.4 Clothing, Sensory and Physical Environment</b><br><b>8.3.1.5 Therapeutic Listening</b><br><b>8.4 Vestibular Feedback</b> |
| <b>9 Disconnection between occupational therapy and psychology</b>                        | <b>9.1 Communicating About Non-Verbal Process</b><br><b>9.2 Conforming to the Medical Model</b>   |

**Table 4: Main Themes and Sub Themes Indicated from the Analysis Participant Contribution**

| Main Themes   | Sub-Themes   | P1 | P2 | P3 | P4 | P5 | P6 |
|---|--|----|----|----|----|----|----|
| <b>8.2 Sensory regulation and emotional regulation entwined</b> | <b>8.2.1 Immersed in Individual Differences</b>  | √* | √  | √  | √  | √  | √  |
|   | <b>8.2.2 Creativity and Difference Embedded in the Culture of Sensory Integration Practice</b> | √  | √  | √  | √  | √  | √  |
|   | <b>8.2.3 “Meltdown” – Sensory Dysregulation</b>  | X  | √  | √  | √  | √  | √  |
|   | <b>8.2.4 Sensory Modulation and Trauma</b>   | √  | √  | √  | √  | √  | √  |

|  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
|  | <b>8.2.5 Where is my Body in Space?</b>                   | √ | √ | √ | √ | √ | √ |
| <b>8.3 Tools and strategies to ground, calm, regulate and organize to engage thinking.</b> | <b>8.3.1 Proprioceptive Strategies</b>                    | X | √ | √ | √ | √ | √ |
|  | <b>8.3.1.1 Breathing for Interoceptive Modulation</b>     | √ | √ | √ | √ | √ | √ |
|  | <b>8.3.1.2 The Wilbarger Protocol</b>                     | X | √ | √ | √ | √ | √ |
|  | <b>8.3.1.3 Squashing and Body Resistance</b>              | X | √ | √ | √ | √ | √ |
|  | <b>8.3.1.4 Clothing, Sensory and Physical Environment</b> | X | √ | √ | √ | √ | √ |



|   |  |   |   |   |   |   |   |
|---|--|---|---|---|---|---|---|
|   | <b>8.3.1.5<br/>Therapeutic<br/>Listening</b>                   | X | √ | √ | √ | √ | √ |
|   | <b>8.4 Vestibular<br/>Feedback</b>                             | X | √ | √ | √ | √ | √ |
| <b>9. Disconnection<br/>between<br/>occupational<br/>therapy and<br/>psychology</b> | <b>9.1<br/>Communicating<br/>About Non-<br/>Verbal Process</b> | √ | √ | X | √ | √ | √ |
|   | <b>9.2 Conforming<br/>to the Medical<br/>Model</b>             | √ | √ | X | √ | √ | √ |

√\* P1 had a different focus to the UK contributions. P1 focused on infant/primary care giver dyad – intersubjective nature of sensory integration – body and voice as focus of sensory integration.

P2, P3, P4, P5 and P6 contributions focused on the family system, parent/child, solution focused involving equipment rather than body and voice.

## **8.2 Sensory Regulation and Emotional Regulation Entwined**

The first master theme reflects the practitioners' sense of sensory integration and emotion being inter-connected. This main theme of sensory and emotional connection is made up of four sub-themes with the fourth theme divided into four further subsidiary themes.

The first sub-theme shows how this integrated approach has come about through an immersion in individual differences. I explored the commitment of the practitioners to understanding each client's sensory experience. The second sub-theme examines the creativity and openness to difference embedded in the culture of sensory integration practice.

In the third and fourth sub-themes the focus moves from the approach of the practitioners to their accounts of the experience of the client and their theoretical understanding of the links between sensory and emotional regulation.

### **8.2.1 Immersed in Individual Difference**

An integrated approach to the formulation of function and emotional modulation was evident in how clients were spoken about in context by all of the sensory integration practitioners I interviewed. Zoe said: *"I think sensory regulation and emotional regulation are so intertwined, you can't possibly separate them..."*.

The practitioners appeared to be committed to exploring each of their client's individual sensory differences in connection with their environment and the impact of each sensory environment on the individual client's feelings and subsequent behaviour.

Sally works with infants and their parents in a way that teaches the parent to understand the sensory experience of the baby on their subsequent behaviour. She focuses in minute detail on the parent and baby interaction from an interoceptive sensory perspective. For instance in this excerpt she is speaking about how time and space works in each individual parental dyad: *"for example what I was describing (to) you I think that to understand the way that we experience temporality and spatiality you need to be immersed in individual differences. So if the baby has slow processing speed and every baby who has low muscle tone every child who has low muscle tone has slow processing speed... then how do we adjust our temporality and spatiality? How do babies understand time and space and see us and they hear us and they put this all together? So how do we (parents and practitioners) do that ...the phenomenology of time and space needs to be individualised."*

This sort of deeply respectful attention to functional, individual differences that practitioners made to understand their client's sensory and subsequent affective experience and behaviour was notable and formed a theme throughout the data. The focus was slightly shifted in terms of the participant that came from the United States.

Coming from a different perspective culturally and academically in the US Sally appeared to be particularly interested in the inter-subjective nature of the infant/caregiver dyad.

Speaking in this excerpt she was interested in understanding the sensory experience of her infant client so that she could make meaning of the effect of the infant's environment on her sensory regulation, in collaboration with the child's mother. *"oh look at her foot now" and "ah what is she... it's really supporting and I am part of the process investigating and unveiling the meanings of the child's behaviour. I need the parent for that I can't do that myself...so it's really a process of unraveling what is the meaning of the behaviour"*.

In Sally's mind as I understood it she was attempting to integrate both their emotional and sensory experience, to articulate the mother and infant's separateness and differences and the subsequent affect on function: *"I am part of the process of investigating the meanings of the child's behaviour...the babies whole look was under-aroused – the assumption is to come at the baby with an intense sensory approach...I understood very quickly that this was a misleading under-arousal - she is actually in shutdown - she is very hypersensitive."* Sally was careful to challenge her initial assumption that the baby was under-aroused as this was how the baby was presenting. This sensory investigation and challenge of the usual reading of behaviour is important to the practitioner stance. Sally continued: *"You see once Mum understood and started to whisper - she is Italian origin and she talks so quickly and she's a very animated mum and it was hard for her but once she understood – (Sally slowed her voice and softened her sound) how do you slow down and make every utterance looooonger and softer?"*.

Sally was attempting to modify the mother's sensory approach to her infant, by asking her to modulate the sound, rhythm, speed of her voice and her physical speed of

approach to the baby - asking her to notice the subsequent emotional response from the infant to the sensory moderation. By attending to the auditory and temporary sensory modulation differences in the parent and infant Sally intended to create a “*beautiful flow of engagement*”.

She did this through suggesting the mother speak more quietly and slowly and approach in a calm, gentle manner towards the infant. Sally found that the child and parent experience was transformed and in Sally’s view “*they were able to bond more effectively*”. The subsequent impact of this interest in the sensory experience of the infant client either experiencing her mother as soothing or as distressing, in Sally’s mind affected the infants attachment with her primary caregiver. By attending to the pitch and speed of the parent’s response to the baby she was able to regulate the child’s response to the parent and her wider context. This helped the baby out of the catatonic, dysregulated state she had originally presented to Sally in. Occupational therapists in general and Sally in particular with regards to the caregiver/infant dyad in this case, was interested in regulation and function (Reed & Sanderson, 1999) - the baby became responsive to the parent and the dyad in her view became functional.

### **8.2.2 Creativity and Difference Embedded in the Culture of Sensory Integration Practice**

Helping their clients to function was the role that the practitioners I spoke to were concerned with. It was evident from the data that in the field of sensory integration, highly creative, often self-engineered tools and practice were being used to modulate sensory, psychological and emotional dysregulation. The inclusive stance and tools

enabled their clients to go from a dysregulated state to a functional, regulated calm state. The therapists I spoke to were all interested in how their clients could function independent of their interventions. Sally was concerned with how the human body of the primary caregiver could regulate the sensory experience of the infant – with this being deeply personal and particular to each dyad. The practitioners were interested in their client's own sensory solving strategies. In the UK they were concerned with any additional tools and interventions they offered being affordable and accessible with many of them talking about kit to give proprioceptive feedback coming from as Lena said *"the Pound Shop"*. Many families she explained were not able to afford treatment or the sensory kit required and she and the other UK therapists enjoyed creating solutions to this problem. The practitioners in the UK were conscious that most of their tools and strategies were not available to the clients they wanted to work with on the NHS. Part of their assessment involved exploring the sensory seeking strategies that their clients already employed. They then worked with their clients, families and teachers to develop these approaches and make them more effective. For some practitioners their thinking seemed to encompass an embracing of seemingly odd client strategies at a very ordinary, daily level, Zoe said: *"I once had a parent who said that, every time John (pseudonym) came home, he (the client) wants to climb under his bed. This was an 11-12-year-old. The mum thought that that was something wrong. She said "He crawls under his bed and he won't come out for half-an-hour!" She thought I was mad because I said, "You know, that is absolutely fantastic," because when he came out, he was all OK. But she was just so focused on that odd behaviour, and I said to her, "That is so amazing because he is self-regulating." So, actually, to make it more efficient, because she was finding it hard, because then they got home late and then he was under the bed and then*

*they needed to go somewhere or he needed to come out for dinner, so let's try and make that time more efficient so that maybe he only needs 20 minutes, or maybe only 15 minutes".* Zoe described this as the amount of time it took for the child to reset his system so that he could re-engage and begin responding thoughtfully to his environment again. Zoe was concerned with speeding up the time it took for John to settle and ground himself. *"So let's add this and this and this (picking up cushions from around her). Let's add some Thera-band that he can put on his legs and just lie under his bed and stretch. That is really nice proprioceptive input."*

Zoe combined education - a top-down strategy - with bottom-up proprioceptive tools to give sensory input to help John regulate his emotion on his return from school. Zoe understood this strategy helped John to attain a calm, alert state in a quicker, more effective manner. The practitioners saw themselves responding to their client's sensory seeking and avoidant behaviour to create independent interventions. Parents, teachers, other practitioners and clients were almost invited to become sensory detectives themselves understanding how the environment can create sensory disturbance and consequently effect emotion, behaviour and sensory regulation. Part of the treatment was the narrative and understanding of the difference. Zoe was concerned about the way the interventions were being misunderstood: *"I don't think the College of OT has been very helpful. In fact they have been quite destructive quite recently with regards to the bottom-up approaches. That has been because, potentially, therapists have been using them in the wrong way, in the sense that, for me, it is a top-down **and** a bottom-up."*

All of the therapists thought it important that the top-down explanation of strategies was as important as the bottom-up interventions. The people around the client were encouraged to be less judgmental about the client behaviour and advised to hold an inclusive stance with a creative, open mind. Hayley came up with an innovative solution to help her friend's child with her concentration: *"I've got a pen with a fiddly bit at the top...also doodling if I'm really finding a meeting hard I doodle. If I can't doodle I can't pay attention I was talking to a friend about this the other day she said my daughter has just got really told off for that at school for doodling in her books and her books are a mess. So I said just give her some post it notes and she can stick them on and doodle and still concentrate because she needs to doodle to concentrate, she can take the post it notes off and put them in the bin and she hasn't ruined her book."*

Hayley's pragmatic approach tackled affect in a number of ways: the client was helped to feel ok about her behaviour rather than naughty as she was made to feel at school. She was supported to regulate herself with an easy strategy. Her anxiety and potentially shame at getting it wrong and doodling in her school-book had been avoided. Framing behavioural difficulties as a functional response to sensory dysregulation appeared to be an important part of the intervention.

A large part of Zoe's intervention was to help John's mother understand that what he was doing was less odd than perhaps the mother had first thought. By climbing under the bed the child was finding a small, dark space with minimal exteroceptive sensory feedback. In the small space he could squeeze himself therefore giving himself proprioceptive feedback, regulate sound and ground himself. The therapist's role in this example was to



give meaning to the parent and child as to what the behaviour – hiding under the bed - could mean. She also gave permission to the child to carry on with his strategy and to find ways to improve the child's own method of regulation by introducing other ways to give the proprioceptive feedback. Hayley acknowledged: *"you are giving it the OK. You've got a license to do it."* This is seen in sensory integration terms as introducing effective strategies as "OK" to self-regulate using proprioceptive feedback. The consequence of this self-containment and proprioceptive feedback was that the child was able to think and get on with the rest of his evening without mental or emotional collapse or 'meltdowns'.

### **8.2.3 "Meltdown" – Sensory Dysregulation**

John and his mother were representative of a number of clients that the practitioners mentioned. Many of the therapists were called upon to help manage what their clients termed 'meltdown'. Zoe told me that she: *" was talking to a parent yesterday, with a child with sensory processing difficulties, and it is resulting in very poor regulation. So she will have complete meltdowns and actually hold her breath and pass out"*. Zoe's view of this vignette came from a sensory regulation perspective.

What were viewed as behavioural difficulties by some professionals, therapists and parents for instance – hanging upside down on chairs, swinging on chairs, rolling around, sitting in corners, laying under beds - were viewed by these practitioners, from an interoceptive, sensory perspective as a response to sensory context and sensory overload to self-regulate. Hayley thought: *"that's definitely what people don't understand is that our children are not being fussy, they are not being naughty they are just telling us*

*that this is really painful and extremely uncomfortable. If you think about light touch from a sort of neuro-physical point of view, light touch travels to the brain on the same pathway as pain so if you have a sensitivity to light touch there is no gate that stops that going to the pain sensors in the brain which is why we use deep touch as that travels in a different direction. I'm not surprised that if you brush past someone and they give you a kind of a whack well that is your fault. In my mind ninety nine per cent of the incidents we have still in this school - which is very good - are caused by us."* Hayley explained that some people who could be described as tactile defensive experience soft touch as painful. Hayley used her empathy to understand the experience of the child in this example. Instead of imposing a typical social view about the behaviour she used a sensory integration stance to interpret the presentation. This *sensory empathy* helped the child to be understood rather than punished. It also helped the staff working with the child to understand how their behaviour may impact the child – not everyone enjoys being touched softly. Hayley felt that sensory regulation issues within the environment needed to be addressed in order to avoid meltdown: *"So you can't have children's arousal levels sort of up here and say so I'm just going to start Math's now and then wonder why they have a complete meltdown because they get tipped over the top - so we start the day with resetting their systems really getting them ready to learn. They will also have individual therapy programmes throughout the day and they will also have strategies in lots of their classrooms."*

Lena told me more about one of her clients who she described as regularly being in 'meltdown' due to his sensory context: *"so he would run off, he would kick, he would scream, all the avoidant behaviours to get away from something that they are perceiving*

*or feeling...that pain threshold is very real to them, when your sensory processing is out of kilter, you will feel it as pain”.*

Katy described her client's meltdown: *“She was a teacher in a special needs school and she was finding it very difficult. Certain sounds really upset her to the point that she would have meltdowns and lose it with her team of staff to the point that it had become a big issue and there were disciplinary issues - they knew she had issues and so were trying to support her but it had come a real difficulty in the workplace and also she had become a social recluse. Her life was her work and then she had time for nothing else so she really wanted to get better. One of her goals was to go out and feel like she could cope with going on a social event ... she was somebody that I felt there was just so much anxiety for her. That was one of the things that we used music (Therapeutic Listening Sound Tracks – Frick, 2017) just to reduce her anxiety before we really even got going on the programme that she wanted me to use because I just felt that her anxiety was so much we sort of had four weeks of music that we just used to shift her anxiety and even in that time she was sleeping seven or eight hours a night ...”.* Hayley's client had not slept for more than four hours before she was introduced to the music from the therapeutic listening programme (Frick, 2017). She explained how the music enabled this client to sleep and reduced her anxiety so that there were no longer functional issues in her home-life and work. Hayley explained that she would have liked to work alongside a psychotherapist with this client so that the client's historic trauma could be addressed. Hayley felt *“she was just the best she had ever been in her body - amazing organization – but I really didn't know what to do with that. Actually, it was definitely linked to her history, but that was just in the session and we didn't send that one [Therapeutic*

Listening music – Peach Jams] *home because, in my gut, I felt that that was where she needed to be, but I didn't know what to do with that*". Hayley thought that different types of therapeutic listening music possibly elicited traumatic memory.

#### 8.2.4 Sensory Modulation and Trauma

Hayley showed me round the classrooms she worked in and the small, cosy, space of one child in particular. Hayley explained that the child was working through trauma and had serious sensory issues as a consequence. All of the practitioners discussed working with trauma in many of their clients. They talked about trauma in several ways.

Life for clients with sensory issues that were not understood by those around them or themselves was described as being traumatic in and of itself. Zoe talked about people being stuck in a sensory state more appropriate for a response to the threat of trauma: *"Some really bizarre example – you are sitting and you can't filter out noise and go: 'That's an ambulance, that's not important,' but, if you heard a lion, for example, you would turn round to that because you would perceive that, 'Is there any lion here? Is it going to come and attack me?' You would respond because you perceive that as a threat. So these children see lots of things in their environment as a threat so they are always anxious; they are always operating on anxiety mode, high alert all the time, even though the environment actually isn't dangerous but they perceive it as dangerous."*

Her suggestion was that not knowing where your body is in time and space, perhaps more commonly referred to in psychological discourse as being ungrounded, was disturbing at a sensory level and traumatic in and of itself. She suggested that sensory

interoceptive feedback could regulate that sensation. *“In my very, very simplistic understanding of the brain, because I look at the brain as being the really basic reptilian brain, then the slightly more sophisticated – the cat brain or the vermilion brain that holds your limbic system, but, as part of that, we are trying to stop them going into that sympathetic response. You can bypass that by using your linear vestibular, your deep pressure, your proprioception and your deep pressure.”*

The thought that the client’s trauma response could be mediated and regulated with interoceptive feedback was held by all of the practitioners interviewed and is a common thread in the literature.

There was also a second group discussed in the context of trauma that were known as *“the attachment kids”, “trauma kids”* or *“looked after children”* – they were identified by the therapists to have sensory issues as a response to early, relational trauma. Hayley described her work with one child described in this way: *“We were talking about a boy this morning who has got loads of attachment issues - a looked after child. Proprioception is the key for him he ... so we were looking at finding him some Lycra garments so that it gives him that little hug all day and actually that has worked before.”*

The practitioners interviewed were curious about relational parent/child dyad in relation to trauma and used this frame to give an integrated psychologically and sensory informed view of client behavioural dysregulation: *“My other little lad, who is the attachment one, I think we have got a long way to go with him. I did one session with him very early on actually in clinic, and I completely lost him because he just goes from 0 to 100 in .5 of a*

*second. Again, it is that whoosh, that internal, instinctive fight/flight stuff, which, again, now I realise it is all about the attachment stuff that is going on, but is coming out in the poorly modulated sensory processing. His neurological processing is all skewed because of what has gone on before.”*

Lena was particularly interested in using touch and cuddling to give the child that she was working with proprioceptive feedback. She created individual formulations and interventions: *“I used to call them my mental health kids in my head because I thought there was another element, and they were all trauma kids, I think, or attachment kids, and he, I am sure, was attachment. I think mum was on the (autistic) spectrum. Mum was lovely, but she just had no idea about parenting, no idea about cuddling and that warm, nurturing side of things. With her (the client’s mother), I did loads of things. I kept pulling her into the games, and I got them, in the end, into the big hammock. The hammock is for two adults - it goes right across the room. He (the child client) used to love climbing from one side to the other. At one point, I said to mum, ‘I think you need to go in the hammock. It is really relaxing, really lovely.’ So she was in the hammock, but, because he liked climbing into it, he then went into the hammock with her for the first time. He found it a bit strange. Then the next time he was in the hammock, he said, ‘Mum, come in, come in”.*

As a psychotherapist interested in developmental process I noted the effort that the practitioners were taking to make sense of each, individual, interoceptive, sensory experience of their clients in their early, relational context. Much of the thinking and the interventions were about the infant-caregiver dyad. Katy was trying to understand if and

how early mother/infant instances such as being born by caesarean could sometimes affect the sensory experience of the child and subsequent response to her environment.

Katy said: *“personal space – how close you can get to someone before they start feeling threatened, things like that; how they cope with clothing; again, do they have very strong foot reflexes. All sorts of different reflexes that we had - so the Morrow one is one. There are loads, but another one that constantly keeps coming up and I think, ‘Wow, this really does pan out, this,’ is, when babies are born, you have the pre-birth movements to enable the baby to wriggle down the birth canal, and then, obviously, when they are born, that reflex is no longer needed and just become integrated and disappears. But, if you are a baby that has been born by caesarean that reflex has not had the chance to kick in or be integrated. I have seen children where there are some difficulties with their coordination, tactile, auditory, mainstream children who are struggling, just a lot of anxiety, and, as I am meeting the parents for the first time, just gathering a bit of background information, I just throw it in and say, ‘Was your daughter caesarean, by any chance?’ and they go, ‘How do you know that?’ It has panned out so many times now.”*

Katy suggested that the children she worked with were almost stuck without a sense of their bodies in a response to their sensory environment ‘as if’ in state of fight/fright/freeze trauma response.

#### **8.2.5 “Where is my body in space?”**

The practitioners I spoke to were linking emotional and sensory dysregulation with a lack of body awareness and trauma, Lena said: *“for me, there are two aspects: there is the regulation, which can be emotional, which you are going to get if there has been trauma*

*or attachment, all that sort of thing...so you have got emotional regulation and sensory regulation".* When practitioners spoke of clients without proprioceptive awareness - survival and the fight and flight mode with a lack of body-awareness were an often-related topic.

Zoe said: *"I think, if you don't know where you are in space, how terrifying is that? Something may come up behind you and eat you. It is that primal. That is what your brain is thinking. That is what your reptilian brain is thinking – 'There is something behind me. I've heard something and it's going to eat me.' Then you just go into that...(and Zoe acts as if to shiver pretending to be afraid)".* In order to manage this embodied experience of threat in everyday life, where an actual threat does not exist the practitioners used interoceptive sensory interventions or encouraged their clients to regulate themselves using interoceptive strategies. Zoe continued: *"I try and think of that with my clients and my children now as well, even with the parents I am working with. It is that how do you stop them getting into that overload zone? With sensory integration, sensory regulation, you very much look at being in the right sort of calm, alert state for learning, and, if a child is flicking too high and going into that sensory overload, well then they can't learn, and I see that within my parents as well. So, for me within my work, I want to stop the intensity and stop the frequency of those shoot-ups into the fight/flight zone..."*

Talking about being stuck in the dysregulated, interoceptive sensory self, was a consistent theme. Hayley told me about one of her clients: *"Our people who are stuck in trauma and a lot of my experience of trauma has been kids who are just so stressed all of the time - life is traumatic - but I have also worked with a lot of looked after children,*



*children who have been adopted after a history of abuse or children who are being looked after at the time of transition through to adoption services or assessments are happening and what I've always found with those kids is that you get that fight flight response and they are almost stuck in flight and because of the repeated stress and trauma they've been through - you...you the body has never got into that recovery so we do a lot of work with playing with the fear but always ending in recovery. So we would do a lot of fun games on the floor with a ball and I did it a lot with the lady I was talking about. You know she was 50 (years old) but still...I would get a big therapy ball and getting... so she is lying on the floor and I would say ... "I'm going to drop this ball and you are going to try and get it and when you've got it you've got to hold it. Hold it with your whole body and don't let it go" and so you would play with that fear of dropping it and you would get that startle (the Morrow startle) coming and then they grab it and then they get it in and they get their whole body round the ball and we would have a whole wrestling game on the floor keeping their body in that flexion playing with fight in a positive (way) when their body is in that recovery sort of posture. So there are lots of sort things that we do".*

Hayley recognised the recovery posture of flexion (where joints or limbs are bent) was important when thinking about improving sensory regulation with people who have experienced trauma. She was attending to the subsequent sensory dysregulation and compromised function and she described this process: *"one of the problems that many of the kids and adults that I've treated is that they don't reset and I think that is the key in trauma that you have got a system that is constantly in that threatened state that doesn't...(she moves simulating discomfort in her seat)... and that rest recovery...(she*

*adjusts her body again to look more relaxed)... recuperate where the body goes so a lot of what we talk about is using flexion postures a lot of the programmes that I give out about regulation you know are about body recovery positions, breath, using exhale in a really positive way getting your body in those flex positions where the body naturally goes to recover but also allowing fight in a positive way because I think a lot of things about trauma... there's this...(Emma curls her body up)... you've got...(she points to the upper part of her chest)... they sometimes...(she scrunches her knees up into her chest in what could be described as a foetal position)... it (the body) is stuck in fight and they can't get out of it because they haven't got the postural mechanisms often to go into those recovery positions."* Emma suggested that by moving the body into certain postures that the body could be released from the state – changing the breath so that it is not as if responding to trauma. This could be similar to the work that Levine (2009) suggests with the body and breath in somatic psychotherapy. Watching Emma trying to describe this idea and using her body to show me brought to mind the difficulty of talking about complex, non-verbal processes like flexion posture and bodies functioning in time and space.

#### **8.2.5.1 Bodies Together in Time and Space**

In Sally's example parents were encouraged to understand the infant body in time and space in relation to their own body, she said "*I work with children and their parents. I work dyadically. The main bulk of the work is dyadic. We are also trying to work within this model with peer interaction looking at how you become a student and how you become a learner that's what's important to me. How do you become a learner of the*

*sensory and affective together using the floor time methodologies? But most of my work is dyadic.”*

Sally worked in a facility in America where there are psychologists, psychoanalysts and occupational therapists worked in a collaborative team. The regulation and understanding of the body in time and space went hand in hand with the notion of understanding and regulating affect, cognition and behaviour.

Zoe reminded me: *“Again, we go back, ‘What is your motor planning?’ It is about your space, your understanding of space, your body awareness, your proprioception, ‘Where is my body? ...Again, then one would use a sensory-based approach to give them the body awareness and the spatial awareness, as to, ‘Where is my body in space?’ and to be able to formulate that action plan.”*

It is difficult to describe not having a sense of your own body in time and space. If you want to swat a fly you need to have a functional sense of your body in time and space in order to judge moving your arm towards a flying object situated in space at the right time. Most of us take this type of functionality for granted. For some people proprioception or the feeling of their body in time and space is different.

People who have this lack of proprioceptive awareness are often described using terminology such as: clumsy, awkward, ungrounded, dyspraxic, gangly and uncoordinated and many other more pejorative labels. The consequence of this lack of sensation that these practitioners were trying to communicate was that the ability to think and reflect was effected. Having a sense of your body in space and time or

proprioceptive awareness was an area of function that the participants were trained to attend to. Sally was able to offer an integrated service with a psychoanalytic psychotherapist to work within an environment suited to dyadic practice. She worked with caregivers and infants to act as a sensory interpreter for their body-to-body interaction.

The opportunity to offer this integrative approach was not the case in the UK, Emma said:

*“That was one of my issues, when I was working with kids with trauma, we had a really poor CAMHS service where I was working and they didn’t have great support - the families. So I would often be using music because of their motor and sensory regulation difficulties, which weren’t really sensory regulation difficulties, they were literally directly linked to their trauma, I would say, because there is a different presentation with typical sensory processing difficulties. What we would get with the music, there were places where I wanted to go but didn’t feel I had the skills – not the skills, but the support of, what I felt we were going to do was really open up a can of worms, that would be great if I had someone to deal with that can of worms when it happened, but, actually, she needed someone who had the psychology, the psychiatry ability to take her through that. Yes, I could help keep her regulating in that time and help support that process, but, actually, both times we were on the verge of that, we changed our tack completely. We still used sound, but not where I would have liked to have gone because I just didn’t feel we had the skills within our team to support the family through what was going to come out of that, and they weren’t going to get the support from anyone else either. So it was easier just to actually say, ‘OK, let’s contain,’ but, regularly with those kids, what we saw was – one time we got this girl who was never ‘in’, she was always very present in her*

*mind but not really very present in her body, and we used a particular quick shift with her and she was suddenly really present in her body but it was like her mind had gone somewhere else. It was like really the most scary thing to watch. The only way I can describe it is she would become scattered; she had just gone.”*

Emma was concerned that she did not have the psychological expertise within her team to work with this particular client's previous trauma and dissociated presentation. She felt that for the child to achieve an integrated state she would have needed to collaborate with a psychotherapist in her team to work with the presentation of trauma. Emma did not have access to a sensory integration informed psychotherapist and instead just used her own knowledge of psychology and the sensory modulation tools and practice that she had. Many of the practitioners were concerned that they crossed boundaries and practised outside their area of expertise with regards to mental health issues. All of the therapists were using sensory integration theory and tools in their practice to modulate affect and help clients engage thinking. The UK practitioners were aware that although they had the tools to help clients, the clients and the NHS often did not have the resource to fully support collaborative, cross-disciplinary treatment.

### **8.3 Sensory Regulation Strategies**

Sensory modulation using therapeutic listening, linear vestibular and proprioceptive feedback was the theme that had the highest prevalence in the data collected throughout the interviews. It became apparent that all of the practitioners were involved and actively engaged in functional body-based interventions designed to engage interoceptive process to regulate anxiety, help with 'meltdown', anxiety, lack of sleep, issues with self-

esteem, focus, help to bring thinking back online and depression. Their interventions were designed to bring their clients back into an alert, calm state that enabled the client to think and reflect. The practitioners shared many practical examples of how they use sensory integration tools to help clients regulate emotion and engage thinking. They used a mixture of education as a top-down strategy integrated with tools as a bottom-up strategy. The next section identifies the subthemes identified as sensory regulation strategies:

### **8.3.1 Proprioceptive Strategies**

#### **8.3.1.1 Breathing and Calming Sensory Regulation to Engage Reflection Through Interoceptive Modulation**

Therapists encouraged different types of breathing to give deep, embodied proprioceptive feedback. They proposed flexion posture (for instance bending into a foetal position) for sensory regulation in order to come back into a calm, thinking state. Katy explained: *“Breath is core for everything. If you are anxious, your breath goes up fluttery and high, and you breathe without using your diaphragm. So you try to get them down to use that, do the deep breathing for proprioceptive feedback”* Emma said: *“You can spend hours doing breathing techniques...with our kids you get this [flutters her hand at the top of her chest near her throat indicating and mimicking fast breathing at the top of the chest], and so we do loads of physical stuff on the exhale...so we were doing it more for the feedback, but we used the same activity for breath where you sit in this sort of position, so you are lying like that in that flexed posture, so, again, you are working in that recovery posture and then you are throwing the big ball and you are doing a kick and*

*kicking the ball back and, at the same time, doing [breathing noises blowing out in small, sharp breaths], whatever, so you are letting that breath go”.*

Zoe explained how she learned about breathing and implemented the technique: *“He gave us each a book, ‘a book on your stomach. Right, breathe and move the book,’ and he said, ‘You’ve got to raise the book.’ Then that is giving you enhanced awareness, because some people think, ‘Which part of my body am I supposed to move if I’ve never done it?’ whereas, if you are giving them that deep pressure, you are giving them that enhanced awareness, and then they think, ‘OK, what do I have to do to move the book? If I stick my stomach out,’ and then they can start getting that awareness of where to actually breathe from”.* Zoe described this type of deep-breathing through moving the diaphragm in order to get proprioceptive feedback. This type of deeply regulated breathing is found in yoga, Pilates, chi-running and singing and some practitioners recommended onward referral to engage their clients in learning how to breathe deeply.

Sally when working with parent and infant saw the importance of each individual dyad finding their own embodied way to regulate each other. She identified breathing as an aspect of that interaction. She thought that body to body regulation was more important than using extraneous pieces of kit: *“...what I need to do is to support the parent in knowing how to get in there... is that I allow the parent to find his way because his way in might not be the same way that I do it. What I bring is that I throw it in that “if you bring her into flexion and move steadily it might help her get her back into more regulated breathing. And if you show a parent if you scoop her up like this (her two hands make a scooped shape as if holding the baby in the foetal position) I want it to be an exploration*

*of the parents to find a way that his body works with her body". Sally spoke about tiny embodied actions between caregiver and infant that she slowed down as if in a freeze frame to understand the two bodies and how they functioned in the sensory context: "I knew I couldn't manipulate the babies body in this situation it was Mum's job to do that and it was my job to reflect on even if she (the infant) made a little movement with both sides she had some asymmetry because of the low muscle tone this can be interpreted as a reaction".*

Hayley said: *"the zones of regulation (are) embedded but within the zones of regulation we attach sensory strategies. So if I am feeling up here (points to the ceiling) what helps me get back to being here (bounces through her knees and points to her feet). That's really important for us (sensory integration practitioners)." Through active engagement with sensory regulation techniques and strategies their clients would bring themselves into a calm, reflective state – ready to engage in thinking, talking, planning and action – the term the occupational therapists used to describe this state was praxis.*

Lena said: *"With sensory integration, sensory regulation, you very much look at being in the right sort of calm, alert state for learning, and, if a child is flicking too high and going into that sensory overload, well then they can't learn, and I see that within my parents as well."* As a psychotherapist I was interested in the interoceptive strategies the OT's used to help the client modulate back into a calm, alert state for reflection and learning.

Hayley said: *"We will do joint sessions together... I will take one of my gym balls, I will take along my indoor swings and things like that, and weighted blankets or my mats to roll them up in and squish them, and I can sit them on a gym ball, I can be bouncing them*



*and you can now talk to them...give them that sensory regulation, get them regulated, that calm, alert state, and then you can speak.”*

Practitioners used these interoceptive strategies to gain verbal engagement from their clients and to enable cognitive processing and planning. Zoe felt that interoceptive feedback strategies to modulate were preferable and more effective than pharmaceutical methods: *“In my experience with acute (adult, psychiatric care) – and that was in South Africa and I hope practice has changed – the route there would be medication: ‘Well, OK, they are not engaging with the psychiatrist, they don’t want to talk to the nurses, the only other avenue we have is medication,’ whereas for me I think, if we could get these brains regulated in that calm, alert, organised state, then, actually, within that, you might actually find them starting to talk.”* It was Zoe’s experience that when the client was given proprioceptive feedback they would be able to think and speak when in other circumstances they could not. She was noticing that where proprioceptive strategies could be used for engagement and calming, pharmaceutical remedies were mainly employed. There were a variety of strategies that the practitioners used in order to give interoceptive feedback to their clients to get them in a state where they were *“starting to talk”*.

Implementing proprioceptive strategies to help emotional regulation to enable cognitive processing was a common theme: *“It (proprioceptive feedback) tries to put the body in a more receptive state.”* The practitioners viewed proprioceptive feedback as the most efficient way for their client to regain the sense of themselves and then their ability to think and process. *“If you use any pressure, of course you then have proprioception,*

*because, if you do that, you can feel it in your hands, in your arms, in your shoulders, and that is quite centering again. I would have thought it was telling me where I am in space, so it is calming from that point of view.*" A theme amongst the practitioners was for their clients to gain a sense of their body in space and time in order to emotionally modulate therefore leading to a state that enabled thinking and consequently functioning. Hayley told me: *"If you need proprioception to concentrate then let's give you proprioception to concentrate."* Various methods were used.

#### **8.3.1.2 The Wilbarger Protocol**

The Wilbarger Protocol was a proprioceptive strategy regularly mentioned throughout the study as emotionally calming and regulating. Hayley described it: *"it desensitises...using deep touch for brushing using a surgical scrub brush, domed and you are doing some really deep touch with it. The arms the back and the legs and that is to desensitise people so you follow that with joint compressions so you're kind of holding people and pushing their joints and firing off the proprioceptive in the joints which reduced the anxiety levels. They've done loads of studies if you look it up with cortisol levels so they've done that with the Wilbarger brushing levels and they've taken readings of the cortisol levels before and after intervention and they've always reduced after brushing. The brushing and joint compressions or just actually having some deep touch."*

The Wilbarger Protocol is a proprioceptive feedback intervention designed to be given to adults or children. Hayley used the Wilbarger Protocol with a male, adult client: *"he was having major, major issues in his marriage because he couldn't bare to be touched and it was becoming such an issue for them...they have been together a while but you know*

*she was having trouble because she said you know every time I go near him he recoils and he said I hate the fact that I do it but I can't help it so we actually put him on the Wilbarger brushing programme which he absolutely hated but as an adult tolerated it and a heavy proprioceptive gym programme and he said it transformed his life. Because he is still not keen but he knows now that his anxiety is reduced with his proprioceptive gym work so he is going to gym he knows he has to do that it is his medicine as he calls it and then with a bit of brushing protocol which has helped him reduce his sensitivity he knows about it so he can tolerate it."*

The strategy appeared to be highly effective in affective regulation. Zoe said: *'So I think the brushing programme, the Wilbarger, I think can be really helpful when you have got those tactile sensitivities, because I think the children who I have done it with, who are verbal enough to give me some feedback, just say that they feel so much better after it has been done. As you (psychotherapists) say, they feel grounded. They can start to feel what their bodies feel like, where they end and where space begins.'*

A criticism of this strategy, although enjoyed by the users is that they are not able to use this strategy as effectively for themselves because the brushing technique needs such deep pressure that it is difficult to self-administer. *"So, basically, it is very, very heavy; you work with all your strength, and I am only just about at the point now where I can do it with my arm again. You need to push really, really hard. Whenever I teach a parent, they never push hard enough. We always treat the people first. We go through the whole body with the parents and then how it would be with the child. It is amazing. The children love it as hard as you can, and it is very comfortable and comforting."*

### 8.3.1.3 Squashing and Body Resistance

Other strategies to give proprioceptive feedback involved: *“...rolling somebody very tightly into a yoga mat or aertex mat, that is really nice feedback, and then rolling the big ball over them, for people who are looking for proprioceptive feedback. But I think the tight sleeping arrangement, putting something around the mattress. Again, it must be affecting sleep because, the moment you close your eyes, you have lost your body, if your proprioception is bad. I always say to parents, “Just sit and relax for a moment, and then you feel you are beginning to lose your body, but you know it is there anyway because you are well put together”. So, the moment you shake yourself, then you can feel it again.’ That is why these people (people who lack proprioceptive awareness) keep moving.”*

The participants also described strategies, which used body resistance to give proprioceptive feedback: *“If I had a panic attack – I can remember sitting on an aeroplane and the woman next to me was flipping out... the other thing I said to her, ‘white knuckle rides – so you pull your hands together really tightly and then you open them up.’ You can do chair push-ups, so you push your body up”* (Zoe put her hands under her bottom on the chair she is sitting on and then pushes her body weight off of the chair, holding her weight with her hands). *My kids who are very wobbly and want to move all the time, I say, ‘OK, time for chair push-ups.’ So we do 10, you put your hands under your seat and you just lift your bum up from the chair, and then the white knuckle ride works quite well”*. Zoe also recommended joint compressions as a method of proprioceptive feedback that is easy to teach to children and adults *“now joint compressions you can do yourself; that is what we teach teenagers to do or 10- or 11-year-olds to do, their own joint*

*compressions*”. She showed me how the client pushes down on their head to move the joints in their neck and also using body resistance to gain feedback in the shoulder and elbow joints. Katy had a small piece of equipment, which was four tiny balls that rolled over and under a finger joint to give proprioceptive feedback to the finger joints. (see appendix 1). She described this as a very discreet way to give proprioceptive feedback. Hayley recommended chewing using the mouth for deep, proprioceptive, body resistance: *“People are great at coming up with their own ideas. We all chew when we get stressed. I like people coming up with their own ways of doing this stuff. We chew pencils we chew our fingernails...all that sort of stuff is calming. She found chewing gum but she wore boots and she also put some ankle weights on then she could sit and get proprioceptive feedback better and that really helped.”* Creative client-led solutions were supported and explained.

#### **8.3.1.4 Clothing, Sensory and Physical Environment**

In addition to these strategies a common theme was clothing for proprioceptive feedback. Lena said: *“For every child, for every person, it is going to be different. So, for one child it might be, ‘OK, let’s put on your weighted vest,’ or, ‘Let’s put on your hug vest,’ or...have you ever seen the body sock?”*

There were many different strategies discussed - all concerned with giving the person using the intervention deep pressure throughout their body. Lycra was a material that was used to give tight, flexible feedback sometimes in the form of a bed sheet, sometimes in the form of a body sock – a long, thin tube that the client would climb into to squeeze the body and give proprioceptive feedback.

Lena talked about expensive squeeze vests with specific pressure mechanisms inside them: *“It looks like it has loads of golf balls inside it. They are hard in a mesh, and the jacket is quite tight. It is obviously flexible. So, when you sit for some time, your body habituates and it feels like you are not wearing anything special. You might feel a bit of the weight. Then, when you move, all those balls, it is like poking fingers. Fantastically alerting and also really reassuring.”*

There were various forms of specialist vests to give proprioceptive feedback. Lena described one: *“It is a vest you can wear underneath your clothes, and you can pump it up and let the air out again, pump it up and let the air out again. So it keeps being tight around you and then you can relax it a bit. So, if you are having problems with concentrating and being comfortable all day long at university, you can do this, and it is not very obvious.”* Lena recommended this type of equipment for both adults and children who did not have a sense of themselves in time and space.

Lena also used cheaper, creative versions of the squeeze vests:

*“The other thing, of course, is if you wear a wetsuit. That was my way that I realised what proprioception was, because, again, I think I am fairly well put together. I went white water rafting and the first thing they gave us was a wetsuit, and I put the wetsuit on and thought, ‘Oh, that’s interesting, I feel my body.’ So, when I have kids, I keep telling parents to buy compression wear, not the expensive stuff, the cheap stuff that you can buy at Sports Direct, just to see if it works, and we can always go for the more expensive stuff later on.”*

Sensory dysregulation was also seen to be in response to physical, environmental factors such as in a classroom, Katy said: *“Classrooms are a nightmare for a child with sensory challenges. So we go, “This is a lovely, light, airy room, isn’t it?” For a child who is visually distracted and auditory distracted, they will be watching, ‘Oh, what’s going on, on that road out there, through those windows? Oh, look at the sunlight out there. Oh, it’s raining. Oh, the wind’s blowing,’ or, ‘there’s a helicopter that just went past,’ or, ‘there’s an ambulance that just went past,’ or a child walked down the corridor, all of that.”* In practice the therapists paid attention to the environment in which their clients were being expected to function. Emma told me that: *“If you haven’t got engagement and willingness to come out into that slightly bigger space, which is why, again, small spaces are really important. I say to schools, ‘There is no quiet, calm space in your school,’ and they laugh when I say, ‘Have you got a spare cupboard? Could you empty out a cupboard? That is a big enough space. You could put dim lighting in there or, if they have got a window with glass in, just leave the light on outside and just shut the light off inside, and they will be much happier, with a beanbag or some cushions.’ And they look at me as if I am slightly mad, until we get some way down the line and then they understand why I am saying that”.*

Katy gave me a tour of her facility and showed me how she considered lighting – was it too bright, too dark, artificial light from different types of bulbs, sunlight – many of the windows in her setting were higher than traditional windows; seating – was the seating giving the client proprioceptive feedback; this could be given in the form of a wobble stool or cushion, hug chair, bean bag; noise – for some the environment could be too quiet, for others too loud or distracting, was there a ticking clock that could be swapped for a silent,

sweeping hand clock, scraping chairs that needed cushioning on the feet; Hayley recommended: *“Put felt pads under the chairs so that when they scrape the chairs it doesn't go through them like a jet engine”*; tactile – are the clothes the person is wearing appropriate for someone with sensory issues – Hayley had teamed up with a large, clothing chain to develop a school uniform range for students with sensory issues, where the labels would not be at the collar – they would be in the pockets to add a fiddle, sensory experience in one area taking away an irritation in the other. Considering children's sensory experience at school was a particular concern for all of the practitioners.

Classrooms as a sensory battleground with emotional consequences for children was a common theme, Andrea said: *“...classrooms are visually very distracting, overloading, auditory overloading. They are difficult environments for a child to navigate through. We manage and struggle with all of that business, and you go, “I can't think because of everything.” Can you imagine if your sensory systems are just all on overload the whole time? You would just be driven to distraction, really. You can understand why they just go, ‘Whaa!’ (waggles her hands beside her head) because you just can't cope anymore. There is no means of escaping that, which, as I said, as adults, we can move away from it, we can avoid it, we can get up and move away and make those choices. In class, you can't.”*

The clinicians were aware of the environment in which they practiced: *“So, again, if you are auditory distracted or certain noises, so it is not necessarily about volume; certain pitches, certain sounds can be irritating or unexpected noises will set off a morrow...”*



Andrea said that when she worked from home that she was careful not to turn the washing machine on or have appliances running in the background as the white noise could be distracting for clients with auditory sensitivity.

Practitioners were sensitive not only to noise in the environment but also lighting and décor, Zoe told me that *“we have to look at the environment and how, as adults, we can facilitate those changes for these children, because they are not always in a position to make those changes themselves. So we have to be the invigilators of that and monitor that and be mindful of that, and help and support these children.”* I did a tour of Hayley’s workspace with her and she pointed out the following: *“So we will have dark dens, moving seats, wiggle seats and all of that within our classrooms and most classrooms will have separate rooms if children need that low arousal.”*

In Hayley’s setting she had specialist seating – *“Yeah yeah it’s like we’ve got a contact chair in our sensory room and I love that it is great so you sit them in them like a big cuddle like a bean bag with cuddle straps over the shoulders (appendix 1) and it just gives you a big hug, wobble stools (see appendix 1) and wobble cushions (see appendix 1).”* All of these items give proprioceptive and vestibular feedback allowing the people using them to get a sense of themselves in time and space, which the practitioners said enabled them to be emotionally and cognitively regulated. Hayley was also concerned with the lighting being adjusted to be calming or alerting. The corridors were wide enough for two people to pass without touching – for people with tactile sensitivity it may be very disorienting to touch people in passing. Visual and auditory distractions were minimised in some rooms with no pictures on the wall, cushioned furniture and neutral

décor these spaces were called “calming rooms”, “The Quiet Room”. Hayley explained: *“we have a low arousal with everything and that means us as well. That means the way you dress the way you smell the way you talk. We have a child with huge noise sensitivity. Have you seen the chatter frackers? (Appendix 1). They are kind of like a traffic light system and you can set it so that goes from green it's all good and it's starts to go up to yellow and if your voice goes too high it goes to red. People think it is in there for the children and actually it is not - it is for the staff and for some of the children we have to be really quiet. But yes so we have like this little boy that I was speaking about earlier and he wants to come in and play games but the environment is set so we will put the lighting on low it's calming and then we do things that are slow pace slowing it down...I think 99% of it is us not getting the environment right and that environment is also us. Too loud, too bright, work clothing in neutral beige because if I am wearing bright flowery tops with a child with visual sensitivity well you are not going to get anywhere with that child. So we are pretty boring really.”*

Every aspect of the sensory environment was considered. When the environment could not be changed practitioners offered a variety of sensory interventions that could alter the patients experience of the environment. Hayley used sensory bags with her younger clients containing headphones, chew toys, fiddling putty, fidget toys and visually stimulating toys: *‘how much calmer is that going to make you feel if they want them they can just go and get them so bags will have things like fiddle toys, ear defenders, so new chewy things for them to have. If you see a child having a really bad time you can say is there anything you need? Do you think this might help they might just put something in their mouth and chew it and that will calm them down. Just a tiny treasure box for them to*

*be able to use. When our children go out into the community we just put them in drawstring bags.”* These objects were used for sensory regulation and to engage thinking.

### **8.3.1.5 Therapeutic Listening**

In order for children to regulate themselves emotionally in the classroom setting Katy told me that: *“Already even after sort of half a term everyone in the school is noticing that the kids we put music on are the ones that you know (uses her hands indicate calming)... and I think you know for a lot of these people with anxiety what we see with using music is we just see some of that calming happening, supporting and going to sleep.”*

Therapeutic listening was also used not only as a proprioceptive feedback tool, it was used as a strategy to soothe anxiety and to enable sleep. It is also used to bring people into a calm and alert state – in occupational therapy this is termed as ‘organised’. Zoe explained: *“As I said before, I do use therapeutic listening a lot for that regulation; to actually get them into the right zone as well. So I might then also have some music playing in the background, or we have got smell, but, actually, it is OK and we are calm and we are organised and we are able to produce an adaptive response”.*

Emma shared therapeutic listening strategies that she used in order for her clients to gain a sense of their bodies in time and space: *“Well, I saw her three times over about an eight-week period, probably. For her, she just needed heavy rhythms in her body. She didn’t know where her body was at all and she couldn’t get those arousal levels up. She tried movement, but she could just never get enough movement to get herself into that*

*level*". Movement is a recognised strategy to engage interoceptive awareness and is a keystone for dance and similar movement therapies. Emma and some of her colleagues felt that therapeutic listening engaged with vestibular and proprioceptive processes in a way that movement could not.

Emma also used therapeutic listening to engage less rigid cognitive processing: "...we see that a lot with some of the music selections increasing flexibility of thought and flexibility of behaviour" and she also used it to focus attention: "So rhythm is a really good way, and we used binaural beats, which train the brain. So they just change brainwave, really, so they shift arousal states up or down, if you match the music appropriately to the individual. We use Rest, Recovery, Recuperate, and, from there, they can either transition easily into focused attention or calming sleep. So they are often the ones we use for helping kids, and you don't need headphones or anything; they just get the app and use them."

Katy said that she had "a number of children and young adults who are very fixated on their own agenda and can't see another way and have to do things their way and you put the music on and all of a sudden they are just much more flexible much calmer, much more organised."

Therapeutic listening (Frick, 2016) is used in Occupational Therapy to regulate both cognitive and emotional processes. In one of the stories I was told by Emma, the music was used by a practitioner to elicit emotion: "So, anyway, when we were at this conference, one of the therapists was explaining what she had done, and she was talking

*about this child who had a history of trauma and she was saying, 'I did this and things went horrendously wrong.' So I thought, 'This is the problem. I'm going to use Peach Jams.' And this lady at the back said – "and you got anger, aggression..." – and she said, 'Yes, how did you know that?' and this woman worked in adult psychiatry as an OT with a lot of facilities, and a lot of her work was for people who were at risk of ending their own lives, were on suicide watch, and that type of thing. She was using music all of the time then, and she said she never uses it for functional or sensory outcomes; it is all about (regulating) emotion".*

Emma explained to me that the auditory and vestibular system are linked.

#### **8.4 Vestibular Feedback**

In addition to these interventions interoceptive feedback regulation methods also use linear vestibular input in order to calm and regulate although the practitioners were very specific about the type of vestibular input. Practitioners noticed that people use their own bodies in particular positions to engage this sensory stimulation. Lena explained: *"You have got three semi-circular canals which are roughly like this. One of them is forward and sideways, one of them is for tilting the head a little bit, and the other one is doing swinging from side-to-side. If you can stimulate your semi-circular canals, all of them, plus putting your head up and down, hanging over a trapeze bar or over the side of the settee – I often say to the parents, 'What do they like doing at home?' 'Oh, they love being upside down,'".* This excerpt is a good example of how the practitioners use top-down explanation followed up with an explanation of sensory seeking strategies.

Lena, Zoe and Katy mentioned rocking as a way to self soothe and regulate. *“So a lot of rocking and vestibular, so, again, when you go back to those people who are severely trauma, and they rock, that vestibular, that proprioceptive stuff.”* Very often explaining to the parents that this type of behaviour was productive and useful was all the intervention needed. The client very often had engaged in their own sensory seeking to find regulating strategies but in school and at home were being prevented from modulating themselves through this process.

It was clear to me during the interviewing and analysis of the data that sensory integration theory had a lot to offer to psychotherapy and psychological and emotional services in terms of stance to difference, cultural creativity, education, tools and strategy and permission to regulate different emotional states and help with sleep. There appeared however to be obstacles to inter-disciplinary sharing of information.

### **8.5. The Disconnection Between Occupational Therapy and Psychology**

In beginning to address the question *“how can sensory integration theory inform the psychological therapies”* - my analysis of the data pointed to some challenges and disconnections that could get in the way of discourse between the two disciplines and indeed prevent inter-disciplinary sharing. Hayley shared her frustrations: *“I didn't get that until I was trying to integrate these things with my teams because it was so obvious to me but when you go and try and talk about it out there it is really difficult because people just don't get it.”*

I organised similar data into a theme collating the patterns regarding disconnection and difficulties with communication. The emphasis in this part of the analysis was on the aspects of data concerned with “**how can**” we talk to each other in order for sensory integration theory, practice and tools to be used by psychological services. The differences between the fields of Occupational Therapy and Psychology perhaps means that researching and communicating between each others fields offers challenges.

### **8.5.1 Communicating About Non-Verbal Process**

All of the sensory integration trainings I attended used video of practitioners working with clients and we took part in experiential exercises to introduce us to the sensory experience of those with sensory challenges. On first addressing the data I noted a parallel theme in practice. When talking about this phenomenon Lena said: “*videoing is fantastic, because you keep feeding back and say, ‘God, that was brilliant how you did that. Did you see his face, the way he looked at you?’ Then, slowly, you guide them, very often towards the realisation that, ‘God, I didn’t react there. I didn’t see that (sensory issue).’*”

The video Lena was discussing showed her client and their parents responding to the sensory environment. Using video was an important aspect of the work with children that the practitioners considered to have attachment issues. Lena explained: “*So you might find somebody who has not attached to the parent, and, if you are trying to do this, which was my case study, then you video your sessions and you then debrief the parent and you guide them towards the assumption that, maybe somewhere along the line, they don’t quite read the child’s (sensory differences).’*” The therapists I interviewed spoke

enthusiastically about how they use video in practice in order to talk about non-verbal process.

Sally tried to help me understand why video was so important to occupational therapists trying to engage their clients and parents with sensory integration theory: *"It's very, very hard to really it's not tangible...so to put this in words, precise, articulated verbal language anyway is such a huge task. (Laughs). How do you convey phenomena...this is why we use (video) tapes. Because we want them to feel and to hear, to see and experience what we are talking about... How do we translate this pre-verbal phenomena not only to verbal but written form...we are talking about a phenomenon that is non verbal"*.

The interviewees shared their experience of frustration: talking and writing about this type of complex, non-verbal process time and time again in different settings and not being understood. For some of the therapists that I spoke to they felt as if they were viewed as *"weird, "crazy" "And they look at me as if I am slightly mad, until we get some way down the line and then they understand why I am saying that."* It appeared that there were multiple factors implicated in the difficulty to dialogue with others regarding non-verbal, interoceptive process and this affected how the practitioners were heard and viewed by others. Hayley was aware of this process in her place of work and explained that: *"When I joined the school I was employed independently to come to the school for an hour a week...with my ball and my weighted jacket and my stretchy band and everyone thought that was the crazy lady coming in. (Laughs) You could see in their faces like you want me to squash them (the client) with the ball? How's that going to help? Anyway worked with*



*him for about six months here then I was offered a contract to come in here because they had seen the impact that it had had on that one child who was extremely anxious but it was exhibiting itself in what was seen as challenging behaviour. So he couldn't sit he couldn't attend, he was only four or five at the time. He was smashing windows and throwing chairs because he was just so anxious and it was the only way he could control his (sensory) environment. Was to make sure if I do this everybody leaves it's quiet and I can control it... so I put the trampette in there to give him the proprioceptive and vestibular feedback to calm that sensory system down. We gave him a quiet room a dark tent and he was able to regulate himself with support. So he could do a little bit of work then they would suggest oh would you like some time in your dark room or on your trampette and he would choose what he needed. And I think the most important thing is that our children are telling us they are showing us what they need. They are fidgeting, they are jumping, they are chewing, they are telling us I need this input to remain calm. We have just got to watch and use our common sense really.”*

Hayley was an experienced, well-respected practitioner and published author who could shrug off these monikers but she was concerned that: *‘There aren't enough OTs out there and there aren't enough people out there prepared to try these weird and whacky things.’* She took up the challenge to communicate with other professionals through writing a book about sensory integration and emotional and behavioural difficulties.

### 8.5.2 Conforming to the Medical Model

Sally suggested that an additional problem with communicating about interoception in the psychological field might have begun with the originator of the theory Jean Ayres:

*“I think it is partly Jean Ayres herself, she was bound by the period she was working in and she had an agenda to bringing these ideas into the medical milieu and the medical milieu works in such a mechanical, systematic approach...If you read some of her (Jean Ayres) old writings she understood that it’s a very dynamic and messy approach and that the affective system is part and parcel but she took that away from the final editions of her model and her followers did that even more so...there is something very strong here in America, making things concrete.”*

Sally argued that the influence of the medical model and the separation of affect from the physical aspect of sensory differences in Jean Ayres theory as it was being developed in the 1970’s was due to there being an issue with sensory integration theory remaining in both the domain of occupational therapy and psychology. The complexity of the theory across disciplines meant that to be accepted it had to be reduced to fit into the medical model of either “body” and occupational therapy or “mind” and psychology. Sally was concerned that the insurance system as set up in the US to “*bill to the code*” and Katy spoke about how in the UK in order to conform to departmental boundaries, practitioners are driven to compartmentalise diagnosis and formulation in order to bill for treatment. Affect in effect was thought to belong to psychologists and the body including sensation to occupational therapists. Sally explained that for billing purposes sensory integration issues are not found in DSMV apart from under the diagnosis of autism...“Hyper- or

hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment (e.g. apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement” (APA, 2013:50). ...and learning disability “co-occurring sensory impairments may prevent social activities” (ibid:36). Therefore because there is reference in DSMV these are the only areas that currently appear to attract regular funding for sensory integration treatment in the US. In the UK even in the cases that indicated this treatment, three practitioners reported that funding has been reduced in the public sector for their work apart from in the most severe cases due to NHS funding cuts.

This reductionist, financially driven view was proving to be a problem for these practitioners who did not feel that they could offer an integrated psychological and sensory service to clients: *“I just feel, clinically, I have had to expand my remit because it is so complex, and I do feel like a mental health, CAMHS-y kind of OT, not just a physical skills OT as well, which is why I find I end up taking on so much...”*

Sally acknowledged the difficulty of working with complexity within the confines of the medical model...*“you know if you are treating a child you need to show you are doing abc and it’s the uncertainty, it’s that messiness and the anxiety that comes with that and you know in this profession (OT) there are not many people who like to be in that place – messiness...I knew that I wanted to understand how to connect with that body of knowledge that came from psychodynamics – that’s how I got into DIR (Development, Individual difference and Relationship dyadic-therapy) because that theory was really built on the sensory and affective – two parts of the same phenomena”.*

The practitioners were grappling with how they could integrate the psychological and emotional with the interoceptive, sensory experience of their clients on an everyday basis. Most worked in private practice in order to offer this facility to clients. The practitioners I met were working with these complexities but some were worried about how they would be viewed talking about this work on tape.

Their anxieties reflected a concern with overstepping the boundary of their discipline and practising beyond their field and outside of their training. I realised that I may be dealing with a level of vulnerability and concern perhaps even shame in the practitioners about being found out in some way to be doing psychologists work. Lena told me: *“NHS people would say, ‘Oh, you’re crossing boundaries,’ - throughout the study it became clear that although practitioners were experiencing themselves as being restricted to practice within a compartmentalised, medical model, when working in the NHS, that financially bills for and sometimes treats body and mind separately. The practitioners themselves did not appear to hold this distinction and were struggling with the tension between the desire not to diagnose and medicalise but needing to attract funding. Zoe was frustrated: “‘My child’s (client’s) got anxiety and I need to access help. How do I do that?’ and I just can’t bear those questions because I know, in this area (sensory integration), there is no help. Sometimes you can’t even access it privately because you don’t then get the team around the child; you get one individual who doesn’t see the whole picture.”* With greater cuts in funding in the NHS more practitioners were working by themselves when initially they would have been working in a multi-disciplinary team offering a more holistic view of sensation and emotion.

Sally came up against obstacles to gaining funding and being able to take a sensory informed approach without having to categorise diagnostically: *“Again, you start off with sensory processing, and in America it is still called ‘sensory processing disorder’, because they were trying to get it in the DSM file as a diagnostic, recognised diagnosis. It is still not in the medical, because, as therapists, we don’t really like it being medicalised, but, equally, until it is more recognised as a formal diagnosis, again parents are struggling to get the recognition and funding.”*

Sally also noticed that being an occupational therapist could have been an obstacle for her using her integrative knowledge to produce research: she said to me: *“Well first of all we are not academics we are really clinicians, if you asked me why I decided not to do my PHD, when I went to school they said you need to decide now are you going to be an academic or are you going to be a clinician because that’s two different roles.”*

Despite these disconnections it was apparent that the practitioners themselves were practising and communicating with clients in an integrated way considering emotional, behavioural, cognitive and sensory factors in their interventions. Both Sally and Katy integrated their sensory practice with psychotherapists and psychologists formally within their settings.

## **9. Discussion**

### **9.1 Overview**

This study looks at sensory integration theory and how the tools are applied in occupational therapy practice from a psychological practitioners perspective. Six participants shared their extensive experience of working with clients with sensory differences. The theoretical approach and methods they used to understand and regulate a variety of sensations, behavioural experiences and subsequent affective and cognitive functioning were considered from a developmental, neuroscientific and psychotherapeutic perspective. In this section the findings will be discussed in relation to the literature currently available. There will follow a consideration of the research findings in relation to the question posed by the study. I will discuss the limitations of this study and consider areas for future research. I will offer my personal reflections and thoughts regarding the implications for theory and practice.

### **9.2 Sensory Regulation and Emotional Regulation Entwined**

#### **9.2.1 Immersed in Individual Differences**

A theme discussed by all of practitioners was an attempt to understand the impact of the individual dyadic nature of perinatal relationships. They were concerned with the effect that pre, peri, and post-natal disturbance had on developmental sensory integration and emotion. The practitioners had experience of working in perinatal care and neonatal intensive care using sensory integration theory and tools. Much of the literature in both psychology and sensory integration supports the view that early sensory integration experience and affective experience are deeply connected (May-Benson et.al., 2009; Rees, 2017; Stern, 1998).

It is thought that we develop a core (Stern, 1998) non-verbal, sensory self that is culturally embedded and embodied through early, developmental, relational experience: “Babies use their eyes, voice, body movements, touch and sense of smell to communicate” (Aquarone, 2016:371). The experience of the sensory self in relationship is said to impact how we conceive of our multiple selves intra-psychically (Bromberg, 1996). It is thought that the infant experiences herself sensually, symbiotic with the body of the mother in-utero (Delafield-Butt & Trevarthen, 2013) and the first twenty or so weeks ex-utero (Stern, 1998). Hill’s (2013), a sensory integration and perinatal specialist proposes that in-utero - context, culture and time - part of identity and self, are imbibed through the foetal senses. Flavours of the amniotic fluid, rhythms, sounds and pressure of the uterine environment are experienced from about twelve weeks post fertilisation (ibid). Proprioceptive and other sensory feedback from the uterine context could be said to effect the creation of the structure of the sensory self in space and time (Ayres, 2005). The literature would therefore appear to support further exploration of this theme by psychological practitioners in collaboration with sensory integration occupational therapists (Baradon, 2017; May-Benson et.al., 2009).

Sensory feedback is affected by economic, cultural, environmental and genetic factors (Negayama et.al., 2015). Each parent–infant dyad is completely individual. This would suggest that it is important for psychological practitioners to have a fuller understanding of the early interoceptive and exteroceptive client sensory context in as much depth as possible or work collaboratively with sensory integration colleagues to understand this aspect of their client presentation. From the earliest days post fertilization it is imagined that infants have internal feelings, interoceptive senses such as hunger not connected to

language (Anthony, 1977). It is assumed that for infants at this stage of development “most encounters with the world are dramatic and emotional” and all are sensory (Stern, 1998:17). The mirroring and meeting of physiological and sensory need can help the infant in their quest for survival and subsequent embodied self-regulation and sense of ‘ok-ness’ (Schorre et.al, 2007). The linking of language to action and feeling aids the movement from the non-verbal realm of sensory experience to the verbal as a developmental leap towards maturation (Mahler et.al., 2003; Stern, 1998). This research suggests that expanding the language and tools available to psychological practitioners from the field of sensory integration to help people to engage and understand their personal sensory experience is therefore potentially useful.

The infant regulates her interoceptive and proprioceptive state via caregivers engaging through eye contact, smiles, hands reaching out and hugs. As Sally suggested, this aspect is thought to be culturally dependent (Negayama et.al., 2015) - from a very early age. The participants highlighted how the sensory state of the infant could impact the relationship with their caregiver. The infant influences her caregivers approach and disengagement through facial gestures and internal affect (Beebe & Lachmann, 1998). Sensations - for instance hunger - in an infant may be met with registration of the sensation by the caregiver and mirrored in language “ah baby’s hungry”. A plan is made by the caregiver to meet the need and then executed to feed the infant – how this need is met is economically, socially and culturally dependent (Myles.et.al, 2000). The sensation of hunger can then subsequently be internalized by the infant with accompanying language and absorbed in some way for the infant as being seen, understood and met – potentially part of developing sequencing. It is then possibly stored in memory and the



body as not overwhelming. This pattern leading to the development of praxis is studied by occupational therapists but is not commonly integrated into psychological trainings.

Questions about birth, feeding, early sensory environment and tactile sensitivity were important to the participants to understand in order to create a sensory formulation to share with their clients and caregivers. This enquiry about the early sensory environment could therefore be said to be important for psychological practitioners too. It has been proposed through the use of neuro-scientific methods such as MRi scanning that early relationships impact brain development (Cozolino, 2010; Schore, 1993). Barnes & Finnerty (2010) suggest that the adult primary sensory cortex is not hard wired, but adapts to sensory experience. Given this plasticity I suggest therefore that it is important that the field of psychotherapy be open to the ideas and tools emanating from sensory integration theory and practice. Ayres (2005) suggests that sensory experience can be altered using sensory feedback therapy. I propose that this knowledge, the tools and therapy could help psychological practitioners engage clients with sensory differences in an open, curious and creative way. Understanding this pattern of events and this sensory method of interpretation in both protagonists in the developmental dyad is important in terms of creating an integrated psychodynamic, sensory narrative for psychological practitioners and their clients.

In psychological literature it is noted that from the earliest days post fertilization the baby has internal feelings, interoceptive senses such as hunger not connected to language (Stern, 1998). Stern (1998:17) assumed that for infants at this stage of development “most encounters with the world are dramatic and emotional”. Therefore Stern’s work the

possibility of an important association between sensation and emotion in the earliest stages of development is indicated. The infant regulates her interoceptive and proprioceptive state via caregivers engaging through eye contact, smiles, hands reaching out, hugs – culturally dependent (Negayama et.al., 2015) - from a very early age. She influences her caregivers approach and disengagement through facial gestures and internal affect (Beebe & Lachmann, 1998).

Sensations - for instance hunger - in an infant may be met with registration of the sensation by the caregiver and mirrored in language “ah baby’s hungry”. A plan is made by the caregiver to meet the need and then executed to feed the infant (Myles.et.al, 2005). The sensation of hunger for instance could subsequently internalized by the infant with accompanying language and absorbed in some way as being seen, understood and met (Ayres, 2005).

This is viewed as developing praxis or motor planning by occupational therapists (Myles et.al., 2005). Motor planning difficulties can effect every day functioning leaving some people unable to tie shoelaces, using cutlery or riding a bike (ibid). For a person to experience themselves as unable to perform everyday tasks such as these can cause shame and affect relationships (ibid). Understanding these motor-planning issues through the lens of sensory integration theory could lend a different view for psychologists and psychotherapists when considering formulation, diagnosis, practice and treatment.

It could be said that we gain our internal psychodynamic map by reading the intention of the other and internalising an expectancy – I'm ok, I'm safe, seen by you and my needs are being met (Negayama et.al., 2015). Stern (1998) & Schore (2003) hypothesize that *how* the infant's internal interoceptive sensors - feelings of hunger, temperature and distress are attuned to or not by the caregivers response - determines the development of the pre-frontal cortex and subsequent development of a sensory map of the self. This mirroring (Beebe and Lachman, 1998) and meeting of physiological and sensory need could help the infant in their quest for survival and subsequent embodied self-regulation and sense of 'ok-ness' (Schore et.al, 2007). Understanding any infant developmental difference like prematurity, being born by caesarean, early separation or early trauma could therefore be said to be of value to psychological practitioners to understanding concepts such as the self (Delafield-Butt.et.al., 2015; May-Benson; 2009).

If the infant creates an internal map – or organizing principles (Stolorow et.al., 1995) - in response to the early, embodied, sensory self, psychological practitioners would need to understand this process. It is suggested that such organizing principles (Stolorow et.al, 1995) are referred to unconsciously during everyday life and influence direct emotional contact – this could impact how psychological practitioners think about transference - perhaps as an embodied, sensory process (Beebe & Lachman, 1994).

The practitioners I spoke to were sensory detectives creating individual sensory stories about how the felt experience of the infant, sensory self could be formed (Delafield-Butt & Trevarthen, 2015). Stern (1998) attempts a similar exploratory process in his book *the Diary of Baby*. Examining the everyday gentleness and responsiveness or otherwise of

the sensory environment and the primary caregiver to the infant both in and ex utero (Delafield-Butt & Trevarthen, 2015; Delafield-Butt & Trevarthen, 2015; Negayama, 2015) could be part of psychological formulation and subsequent treatment planning.

### **9.2.2 Creativity and Difference Embedded in the Culture of Sensory Integration Practice**

Ayres (2005) was the original sensory detective, divining for *sensory empathy*. She began to understand sensory differences through her observations of children with learning disability and autism. She was curious about children's differences not only with learning and language but also the challenges they had with processing exteroceptive and interoceptive sensory information (Kranowitz, 2005).

All participants in the study suggested that sensory education, acceptance and understanding of individual sensory difference to be important for people with sensory issues and their carers. The participants took a humanistic approach akin to that of Berne's accepting and understanding (Berne, 1975). The practitioner attitude appeared to take a deeply person-centred approach towards the client's sensory experience. Dunn proposed "knowing about your own sensory patterns provides you with a method for managing daily life" (2001:618). Building literacy in sensory issues amongst practitioners, caregivers and patients is an important part of the approach taken by sensory integration practitioners as evidenced in the findings of this study and this theme is supported in the literature (Ayres, 2006; Dunn, 2001; Kranowitz, 2006; Myles, 2005).

The participants suggested that attention to sensory differences could challenge traditional notions of affect and behaviour and offer an inclusive approach to human being. They were paying attention to diversity and difference. They appeared to be accepting and encouraging of diversity in the form of sensory difference but as Fuga states: “there is no inclusion without cultural transformation” (Fuga, 2016).

Sensory integration theory has grown out of the culture of learning disability and autism, fields that are spearheading diversity and inclusion in society (Fuga, 2016, Mencap, 2018, NAS, 2018). The findings suggest that there appears to be a “cultural framework” (Fuga, 2016) within the field of sensory integration, which allows for individual difference to be not only allowed but desired and valued. Dunn (2001:617) argues that “sensory processing patterns are reflections of who we are: these patterns are not a pathology that needs fixing”. The history of learning disability underpins the theoretical frame, culture and therefore stance of sensory integration.

In concurrence with the occupational therapy literature (Dunn, 2001), the practitioners offered a detailed, alternative and informative narrative to describe certain types of behaviour. It was as if they were interpreters for society for the “weird” (Lena, Haley), “crazy” (Haley) and “odd” (Zoe, Lena, & Katy) behaviour of their clients and the practitioner’s own ideas in response. Sensory seeking and avoidant behaviours were explained. The participants took an inclusive, sensory perspective, paying attention to individual differences. They used the frame of sensory integration theory to describe development and behaviour, to educate caregivers and clients and prescribe interventions.

The participants saw the narrative of interoceptive differences as useful to their clients and their caregivers. It made unacceptable behaviour acceptable – doodling in an exercise book (Hayley) was transformed from “naughty behaviour” in the mind of the caregiver to regulating behaviour thus making the behaviour understandable and acceptable. Seemingly odd behaviours – for instance crawling under a bed (Zoe), lying upside down on chairs (Lena), swinging on chairs (Lena) were recognised as being a desire to self-regulate and reset an individual's sensory system. This helped the behaviours to be accepted as a “protective function” (Myles et.al., 2000:6) and empathised with rather than discouraged.

These behaviours would traditionally have been prohibited or seen as “weird”, “crazy” or “naughty”. The interpretation of the behaviour through the lens of sensory integration theory meant that the behaviours and feelings were given a pro-social meaning. The socially negative, pejorative process - judging certain behaviour as wrong - by parents, psychiatrists, prison-wardens, teachers and practitioners was implicated, by the practitioners as causing problems. They felt this process affected self-esteem and made their clients feel anxious, ashamed and worried about getting things wrong. I use the word ‘wrong’ in this context to suggest not traditionally expected behaviour like sitting upright in a chair or walking down the centre of a path - rather than rolling down a path for instance, or balancing on the edge of the path - both of which give greater proprioceptive and vestibular feedback compared to walking down the path and therefore considered functional in occupational therapy terms. To understand the function of these ‘weird’ behaviours appeared to help their clients and caregivers to understand.

The practitioners used a top-down, educational approach so that their client's had a narrative explaining their states of regulation and dysregulation. They looked at feelings and behaviour through the window of both exteroceptive and interoceptive feedback including vestibular and proprioceptive. They taught bottom-up strategies to help people regulate their emotional and cognitive states. Myles et.al's. (2005:72-98) table gives a useful outline of this integration of a bottom-up and top-down approach delineating "incidents, interpretations and interventions". Understanding sensory difference and the emotional consequences appears to be an important part of "self-acceptance" (Hendrickx, 2015:122) and potentially reducing anxiety and shame (DeYoung, 2015).

This sense that sensory integration was intimately entwined with emotional regulation and subsequently "temperament and personality" (Dunn, 2001:615) conveyed by the participants in the study was supported by the literature (Ayres, 2006; Dunn, 2001; Kranowitz, 2006; Myles, 2005). Dunn (2001:615) proposed that: "sensory processing mechanisms underlie the manifestations of one's temperament and personality". Through understanding this sensory and emotional entanglement participant's clients were described as being able to make choices about themselves in context, which could be seen as empowering and empathic (Myles et.al, 2006). Understanding the impact of sensory integration on emotion and praxis is important for psychological practitioners. They can encourage clients to engage in sensory activities that are soothing and beneficial and avoid overwhelming sensory environments. Developing a greater vocabulary and encouraging multiple explanations for sensory responses (Dunn, 2009) to the environment is important to inform psychological practitioners and help develop new discourse and considerations for practice and potentially diagnosis.

Psychotherapy could be said to be a discipline concerned with how to gain empathy (Rogers, 1961; Stern, 1998) in order to understand a client's experience from the client's individual perspective. Taking a sensory integration view of client experience could be said to be part of the healing process through creating empathy. In psychotherapeutic literature some authors talk and write about regulation and the interoceptive state (Van der Kolk, 2014). The approach of the practitioners that I spoke to trained in sensory integration theory took this sensory investigation further. Each individual sensory experience was explored from the client sensory perspective rather than the 'normal' perspective imposed by society.

I understood this approach to be about acceptance. This is reminiscent of the attitude proposed by Hughes (Hughes, 2018) of Playfulness, Curiosity, Acceptance and Empathy (PACE). DeYoung (2015) advocates Hughes approach as a way of deconstructing shame in psychotherapeutic contact. She suggests a "relaxed openness" in contact with the client and this is reminiscent of the practitioner stance of the therapists that I met during this study. They were open to listening to their clients about their sensory experience of the world in a non-judgmental, non-pejorative way.

One word that did not seem aligned to this approach was the use of the term "neuro-typical". The practitioners referred to people without sensory integration issues as 'neuro-typical' which appears to have become a by-word for 'normal' in this milieu. This moniker suggests that 'typical' or 'normal' in any population exists, which could be argued. This label could perpetuate the notion of normal, which can increase feelings of shame (DeYoung, 2013) and be counter-productive in championing difference and



inclusivity. If the label “neuro-typical” has to be used in psychological practice it could be used more specifically explaining a neuro-typical pattern in sensory processing for instance.

The occupational therapy literature of sensory integration recognises that “our interpretation of sensation is individual” (Dunn, 2001:617). As a result, reactions to a given sensation can be very different among people even when they experience the same sensory information. (ibid, 2009). It is the development of this sensory empathy that is currently missing in psychological training, services and practice. In sensory integration therapy the client learns about how they respond to the environment around them as an individual (Myles et.al, 2006). For the practitioners that I spoke to treatment was about education, as well as integration and regulation. The process of education could be said to help tackle the shame of being different to others, desiring normality (DeYoung, 2013). Suggesting that normal or neuro-typical exists could be counterproductive to this process.

The desire to fit in and be seen as normal could be seen as an unconscious motivation towards safety leaving those who feel different on the outside, vulnerable - perhaps unconsciously experiencing themselves under mortal threat (Lorenz,1973). In mitigation of these survival feelings the occupational therapy practitioners I interviewed were engaged in the explicit process of enquiry, education, treatment, regulation and encouraging self-regulation in patients. Their goal was to help their client independently maintain themselves in a calm, regulated thought-enabling state and for their environment to respond to them in a way that allowed for this.

This thinking, alert, calm state is referred to in the literature as “alert” and when used in this context appears to be left over from the programme created by Williams & Schellenberger (Williams & Schellenberger, 1994). “Just right” (ibid) is described as the sensory, regulatory state that the child needs to attain in order to be able to regulate their emotional state in order to think. Breathnach has incorporated this idea into her approach working with children labeled as having attachment issues, and with children labeled as looked-after and uses the term “just-right state” (Breathnach,2018). The approach these programmes take have similarities with Siegel’s (1999) regulatory approach described as the “window of tolerance”.

This study was not able to map language, the sample was not large enough for any conclusions to be drawn (Ritchie & Spencer, 2004). However it became evident that the practitioners were using the terms ‘calm and alert’ interchangeably with ‘window of tolerance’ as described by Siegel (1999). Simply as an observation in the early days of this study it became evident that in the literature there was a great deal of similarity in terms yet little cross-referencing between modalities. I reflected in my journal wondering if the symbols <sup>™</sup>, ©, and ® that were stamped on terms and books were actually getting in the way of collaboration and the cross pollination of ideas across disciplines. I reflected on this with my supervisor and wondered if fiscal considerations and competition hindered collaboration across disciplines making it hard to recruit participants. The symbols communicate ownership and therefore infer a financial implication and competitive issues with sharing ideas. It has been interesting in the latter stages of this enquiry I have been asked to copyright my own contribution to a recent journal. I have also been tempted to lay claim to certain terms as a result of my

research. This was not an issue I could pursue in this limited enquiry but is fuel perhaps for further research into cross-disciplinary collaboration and both conscious and unconscious competitive processes.

All of the participants were familiar with the term 'window of tolerance' from the world of psychology and used it interchangeably with terms like 'calm and alert', 'just-right' and in both participants places of work that I visited there were cartoon posters showing traffic light systems indicating the sensory requirements that would keep clients in their 'window of tolerance' (Siegel, 1999). These terms are used in common parlance in sensory integration fields and are used to describe a state wherein a client available to reflect, process emotions and engage thinking. Rothschild (2017:pullout poster) uses another version of this colour system in her poster on the "autonomic nervous system, precision regulation and what to look for". Rothschild's "normal life" states appear to correspond with the states that the practitioners spoke about as calm or alert. Further research with larger sample sizes to map the connections, similarities and differences between terms is needed.

Rothschild says that psychotherapy progresses well when clients are in "normal life" states. She suggests that clients can be regulated by the practitioner asking the client to pay attention to exteroceptive cues – "shifting a client's attention to using his exteroceptive senses ("what colour is the painting?") quickly steadies his state of arousal and his emotion." (Rothschild, 2017:71). She suggests that if someone is experiencing themselves as dysregulated and dissociated for instance when experiencing themselves

as if there and then, temporally in a “flashback” (ibid: 72) they can use exteroceptive cues to ground themselves.

The sensory integration practitioners that I spoke to tended towards a balance of interoceptive and exteroceptive interventions to regulate and ground their clients. They were engaged in a collaborative, respectful and curious investigation to recognise each individual persons exteroceptive and interoceptive sensory processing style (Kranowitz, 2004). This was a less doing to approach (Buber, 2010) and more of an equal exploration with the client becoming aware of their sensory response when feeling stressed or reacting to trigger from trauma.

Paying attention to individual sensory difference for the practitioners I interviewed began with assessment (Ayres, 2005; Champagne, 2002; Champagne, 2011; Dunn, 2009; Greenspan & Weider, 2006). “The Adolescent/Adult Sensory Profile enables clients to evaluate themselves through the use of a Self-Questionnaire. Evaluate the possible contributions of sensory processing to the client’s daily performance patterns and obtain information about everyday sensory experiences and the impact on behaviour in different settings.” (Dunn, 2002). There are separate assessment tools available for both adults and children and for different client populations (Champagne, 2011; Dunn, 2001). Williams & Schelleberger (2004) offer an adult sensory-motor checklist to help indicate where sensory sensitivities may cluster. Greenspan & Weider (2006:50-51), recommend: “an extremely thorough assessment is necessary to determine how constitutional and maturational factors, environment, and social interactions combine to produce a particular child’s competencies and presenting symptoms”. The findings of

this research indicated that it was as if the sensory integration therapist's whole practice and treatment was an attempt to understand and give a narrative to each individual, developmental sensory difference and the impact that this had on their client's day-to-day lives and emotional regulation. Psychological practitioners could learn from this curious and open stance to the assessment of sensation and its impact on human behaviour and emotion. Many mental health practitioners adopt a biopsychosocial clinical model and assessment practice and yet the biological component is often neglected in psychological trainings (Walbam, 2014).

In infant and child client populations the findings and literature would support the use of thorough sensory functioning assessment in conjunction with psychological assessment at the outset of intake to any psychological services (Ayres, 2005; Dunn, 2009; Greenspan & Weider, 2006; Kranowitz, 2005). There is less evidence to support the use of assessment in an adult population due to the lack of research in adult populations. Dunn (2001:618) indicates that: "sensory processing is a core feature of our humanity. Understanding the nature of one's sensory processing needs provides background knowledge for constructing daily life routines and contexts that are respectful of the nervous system's need for some balance of excitation and inhibition".

Integrating the concepts of: sensory consciousness (Merleau-Ponty, 2002), early relational experience (BCPSG, 2010; Bowlby, 2010) and their impact on developmental (Stern, 1998) and neural (Schore, 2003) maturation help to make sense of the impact of this sensory disruption. Both client and therapist have an evolutionary, cultural, social,

political, economic, geographic, relational and sensory history preceding birth. Taking a sensory assessment is just one aspect of the understanding of the client as a whole.

In order to adopt a holistic, integrative approach to psychotherapy, an understanding of sensory integration theory is important. Creating narratives with clients about their evolution (Lorenz, 1973) both historic (Harari, 2012), including the foetal and post-natal (Hills, 2013) and contemporary, their consequent sensory environment and their subsequent internal psychic and interoceptive experience is part of the therapeutic process. Linking understanding of the impact of the sensory environment to the construction of the sense of self could become a function of the stories. I like to think of this as understanding what 'sensory goggles' a client could be wearing made up of their early sensory experience. These could be part of the therapeutic physical, - as in two bodies and existing together at the same time and place each week - emotional and verbal contact (Stern, 1998). This could be framed as an attempt to understand the transference in a similar way to that which Stolorow et.al. (1995) propose.

In response to their context an infant creates an internal map – or organizing principles (Greenspan & Weider, 2006; Stolorow et.al., 1995) – this could be said to influence their developing *sensory self* (author's term). The felt experience of the sensory self could be formed through the everyday gentleness and responsiveness of the primary caregiver to the infant both in and ex utero (DeLafield-Butt & Trevarthen, 2013; Dunn, 2001; Greenspan & Weider, 2006), as described by Sally. These organizing principles (Stolorow et.al, 1995) are potentially referred to unconsciously during everyday life and

influence direct emotional contact – like wearing a pair of sensory goggles (Beebe & Lachmann, 1994).

Psychotherapists could offer a sensory sensitive space physically and metaphorically where they and their client make a guess about their early in and ex-utero non-verbal, implicit, sensory experience of their environment (BCPSG, 2010). This practitioner sensitivity to the sensory could help the client understand how time past can impact time present from exteroceptive and interoceptive sensory data experienced in the here and now (Merleau-Ponty, 2002). This storying of unconscious sensory process potentially gives meaning to early relational experience (BCPSG, 2010). The participants spoke about prematurity, caesarean section and early infant/parent separation all having an impact on the infant sensory experience and subsequent development. Understanding the impact of these early relationships and consequent sensory experiences on current relationships could lead to the possibility of understanding and potentially change (ibid; Baradon, 2017; Rees, 2017;).

It could be significant for psychological practitioners to understand early sensory disruptions. Neurobiological research appears to show that early relational experience affects brain development (Cozolino, 2010; LeDoux, 1998; Shore, 1993). Where early developmental attunement is not sufficient or is too much, the pre-frontal cortex does not appear to develop sufficiently (Shore, 1993). This attunement relies directly on sensation, visual, tactile, olfactory and gustatory (ibid; Aquarone, 2016; Stern, 1998). Reflective capacity required for connected relationships and to develop a sense of self do not mature if misattunement occurs (McGilchrist, 2010; Rothschild, 2017).

Psychological practitioners function could be said to help clients to develop reflective capacity about sensory context (Levine, 2010). This could happen through the process of reflection in a psychotherapeutic relationship, including how the two bodies with their sensory processes, patient and psychotherapist being at the same place, same time each week (McGilchrist, 2010). As a person speaks they could be asked to reflect on their bodily sensations and notice how the embodied sensation impacts on their emotion and ability to self-regulate (Levine, 2010). In sensory integration theory and literature the processing of sensation is linked directly with subsequent emotion and behaviour (Ayres, 2005; Myles. et.al., 2005).

### **9.2.3 “Meltdown” – Sensory Dysregulation**

In many cases the practitioner’s interviewed described being called in as a last resort when all other modalities had failed to address their client’s emotional dysregulation commonly called “meltdown” by caregivers, authors (Hendrickx, 2015:104, Myles et. Al., 2005) and the participants alike. The Oxford dictionary gives a definition of “meltdown’ as being *“An uncontrolled emotional outburst or a mental collapse.”* (Oxford Dictionary, 2018).

The practitioners assessed the impact of sensory differences as intertwined with their client’s emotion resulting in “meltdowns”. They viewed the meltdown as a consequence of their client’s sensory profile on their ability to function in response to everyday environmental stimulus. The practitioners indicated that their client’s ‘meltdowns’ were not always behavioural or emotional as classically defined but were in response to environment and sensory processing differences. Myles et.al (2000:17) suggest that: “if



there are difficulties with effective registration of sensory input, then subsequent steps in the integration process will be disrupted”.

Psychological services and practitioners could offer an inclusive physical and notional sensory context when working with clients; including but not limited to people with sensory issues as a consequence of trauma (Breathnach, 2018; Koomar, 2012), premature birth and caesarean (Hills, 2009), people with a label of autism spectrum disorder (Myles et.al, 2006), developmental coordination disorder, looked after children with sensory issues (Wilbarger et.al., 2010) and sensory processing disorder (Ayres, 2006). This would mean accident and emergency departments, psychiatric wards, prisons, gp surgeries, psychotherapy rooms and many more places where these clients would be likely to spend time needing to be in a regulated state. This inclusive approach could help clients avoid “meltdown”.

The participant’s clients were empowered to be independent of the practitioner and the practitioners saw the client as expert in their own sensory experience and modulation (Buber, 2010). Zoe said: *“A lot of the time it is always fight and flight and fighting fire. As opposed to let’s just sit back and watch what’s going on and then I don’t like to use the word trigger because the word trigger can be a bit emotive but let’s just watch what’s happening in this child’s environment.”* She was proposing that both client and practitioner “sit back” and analyse the sensory process involved in the meltdown. DeYoung (2015:80) in a statement reminiscent of this “sitting back” stance asserts that: “the hard work of empathy also requires clarity about our separateness from our clients. Our separate self is the one who validates the client and who, at a more basic level, is

the “other” who tunes into the client’s affect in order to regulate and stabilise the client’s sense of self”.

The approach taken by the practitioners in this study was less about the client being “done to” (Buber, 2010). They investigated with curiosity alongside their client about the client sensory states from moment to moment. They educated the client and caregivers to enable self-regulation. This process was seen by the participants as giving permission to the clients to be as they are in their embodied sensory self (author’s term). This stance has echoes of the “de-shaming frame” that DeYoung, (2015:80) describes. She recommends to “work from the client’s values rather than imposing our own, to equalise power and refuse the role of expert wherever possible, and to affirm the client’s strengths” (ibid.). Oppositional behaviour for instance could be redefined using this lens as sensory defensive. Psychodynamic practitioners could gain awareness that tactile defensiveness could have roots in sensory issues rather than be given a sexual interpretation for example. The practitioners I spoke to were not imposing their own social norms about behaviour and emotion – they were taking time to develop *sensory empathy* (author’s term) with their client’s experience and creating new narratives alongside their clients and caregivers.

### **9.3 Sensory Modulation and Trauma**

The stories the practitioners told linked trauma, early developmental separation, neglect, natal prematurity and caesarean with sensory issues. Many approaches to psychotherapy acknowledge sensory differences specifically as a response to trauma

either implicitly or explicitly (APA, 2017; Herman, 1997; Levine, 2010; Ogden et.al.,2006; Van der Hart et.al. 2006; Van der Kolk; 2014).

These authors do not link sensory integration theory and practice in the same way that an occupational therapist trained in sensory integration theory might to affect, cognitive function and behaviour. The practitioners in this study used sensory integration techniques and tools to support people with sensory issues arising from trauma.

Dunn states that “Your nervous system is unavailable for learning when it is in fight-or-flight mode...knowing about your needs and limits on sensory input enables you to increase or decrease input to support your needs and yield more successful outcomes” (Dunn, 2001:618). Reflective capacity develops in part through phenomenological sensory awareness (Van der Kolk, 2014). Greenspan & Weider (2005:154) proposed that “the child’s regulatory and developmental patterns often interact with the stress (of trauma). Infants and toddlers who are under-responsive to touch and sound – who are also sensory seeking or craving sensation are physically very active – often become aggressive and/or antisocial following the trauma...children who are under-responsive but not sensory seeking may shut down further and appear more lethargic or depressed and difficult to arouse”. This depth of exploration and understanding of the sensory consequences of trauma is in my experience missing from mainstream psychological, clinical training.

Looked at in developmental terms the everyday reciprocity of the infant with its sensory environment affects childhood mental health and can lead to disorder (Dunn, 2009;

Greenspan & Weider, 2005; Shore et.al, 2007). An insufficiency in sensory contact seems to be especially influential in the process of shame (DeYoung, 2015) and trauma (Van der Kolk, 2014). The temporal, sensory distortion that results from this lack of early relational contact appears to impact the person's ability to cope with stress and traumatic events and Greenspan & Weider (2005:183) imply this impacts "personality development". I had previously noted that patients in acute psychiatric inpatient care are often reduced to non-verbal sensory communication – head-banging, rolling, curling up in balls in the corners of rooms and wondered if there were connections that could be made to early sensory experience in primary relationships.

Participants reported their clients being stuck as if in a sensory response as if reacting to trauma - this was a consistent theme in the findings of this study. Fight, flight freeze – evolutionary mechanisms of survival – can be triggered out of temporal context (Van der Kolk; 2014). Miller (2009) indicates that effective integration of sensory stimulation is important as a survival system. It is an important survival skill to be able to detect, locate and orient to danger or possible food sources. Miller indicates that in order to achieve efficient evaluation of the environment efficient sensory processing and consequently reflective capacity is required.

Without reflective capacity the individual dissociates from time-present and is shifted into time past, squished with anxiety about time future (Bromberg, 2008). Retaining curiosity about a person's sensory context, phenomenological exteroceptive and interoceptive experience could be important to psychological practitioners. The subsequent internal psychodynamic structure when working with client's who present as

having experienced trauma could be viewed as information (Garland, 2002). The findings of this study suggest that there are practitioners working in the field of occupational therapy adopting a similar curious, sensory empathic stance to trauma and the impact on sensory experience (Champagne, 2009; Dunn, 2001; Greenspan & Weider, 2005, Koomar, 2009; Myles et.al., 2006).

The data from the participants suggest that the storying of client experience using sensory integration theory as a top-down strategy with the client and carers was potentially as important. This could be explained as helping control the fight/flight or stress response from the “watchtower” as described by Van der Kolk (ibid: 62-64). The focus of a top-down approach to both clients and carers from the practitioners was evident throughout the data. “The experience of sensation – how it develops and whether it increases or decreases – is organised in part by how it is interpreted and the accompanying emotional response” (Ogden et.al., 2006:16). It was the interpretation of sensory integration that appeared to be a regulating and grounding factor (Ayres, 2006). Simple questions like “what was your birth like” – considered from a sensory integration perspective - may be useful for psychological practitioners to consider at assessment (May-Benson, 2009).

#### **9.4 Where is my Body in Space?**

The participant’s sense of their client’s lack of proprioception: body awareness and groundedness as a consequence of early relational disturbances and trauma was evident. The participants used their theoretical knowledge (May-Benson, 2009) with a top-down approach and integrated their tools for bottom up strategies. These strategies

were thought to help their clients who presented with a history of trauma to regulate sensation and subsequently emotion, with a view to engage thinking. This notion of sensory differences interfering with praxis, planning and organisation was evident throughout all participant data. This idea is supported in the literature (Ayres, 2006; Myles et.al.,2006)

Current neuro-scientific mapping of the brain after trauma shows that the activation of the insula is abnormal (Van der Kolk, 2014). The insula is involved with interpreting and integrating information from the proprioceptive and vestibular systems to “generate a sense of being embodied” (ibid:247). This idea would support an approach using sensory integration theory, techniques and tools to help ground clients to connect more quickly and effectively with their body and subsequently re-engaging cognitive processes.

Van der Kolk (2014: 247) proposes “only by getting in touch with your body, by connecting viscerally with yourself, can you regain a sense of who you are...after no body comes some body” (ibid). Van der Kolk suggests that the full story can only be told after these body systems are repaired. The findings of this study indicate that sensory integration theory could offer an alternative treatment strategy integrated with the psychological therapies. The practitioners I spoke to seemed to think so, however this would warrant further investigation. Levine (2010:301) writes “without the unimpeded perceiving of ...(interoceptive) sensations, it simply is not possible to know who you are...”. He rationalises that understanding sensation through becoming aware of internal experience is a way of engaging with the bodies’ ability to self-regulate.

Sally advocated a sensory stance paying attention to sensory feedback as simply part of everyday life – breathing, prosody – the rhythm of speech, routine and temporal boundaries, clothing, food, exercise, movement, muscle tone and the relationship with the environment as important – she said: *“you know we as humans are the most integrated source of sensory stimuli especially if we are talking about sensory affective”*. She especially appeared to be considering how the body was affected in time and space with other bodies.

Winnicott, (1974:47), was perhaps referring to this when he spoke about *“potential space”* as the space and time between a mother and infant that allows for play. Stern (1998) was interested in time and space, trying to explain how these constructs impact development in his book the Diary of the Baby: the main protagonist infant Joey, at the time of this excerpt a toddler, in Stern’s imagination muses: *“the space grows bigger and bigger. It becomes boundless. Nothing holds me. I am dissolving like grains of salt in the oceans of space...my world is transformed by her voice...the pull of her presence gathers me up out of space”* (Stern, 1998:92-93). Stern was describing the attachment and exploratory system and how these two systems interact in the space between an infant and his mother. He understood space to be related to *“security, comfort and intimacy”* (Stern, 1998: 80). Bion (1959) speaks of a container, Winnicott (1974) the transitional space and Sartre (1943), nothingness and being and the mental state of being in space and time (Noel-Smith, 2018). If and how these abstract notions link to concrete notions of time and space in prosody and physical space (Negamaya et.al.,2015) need further enquiry.

More research is needed to explore the developmental and emotional aspects of time and space, and the consequence of differences in its flow (Negamaya et.al. 2015; Stern, 1998; Waldron, 2013). Sally pointed out that all infants with sensory differences have slower processing yet this aspect of sensory processing and emotion is neglected in the literature.

Kennedy et.al. (2009:453) said: “The problem is that no organism has direct access to objective time: The timing of events in the world and in the body must, like all things, be inferred from neural events. Moreover, the delay between the time of an event in the world and the time of a corresponding neural event is different for different sensory modalities and may vary with the organism's development and with environmental factors.” For some as Sally was suggesting this flow is different and the inference of time and space mean that they appear uncoordinated. DIR Floortime directs parents to encourage spatial play and movement to “broaden the child’s sensory integration and motor capacities” (Greenspan & Weider, 2006: 348). The understanding of the emotional aspect in respect to disturbances in flow in this aspect of humanity is in its infancy. More research is required to confirm the anecdotal and experiential links being made in practice that proprioceptive disturbance is linked to trauma and pre and perinatal challenges (May-Benson, 2009).



## **9.5 Tools and strategies to ground, calm and regulate affective sensation in order to engage thinking**

In practical, applied contexts understanding embodied, sensory process within the frame of sensory integration has allowed for sensory integration practitioners to create a variety of interventions (Ayres, 2006; Breathnach, 2018; Myles et.al. 2006; Koomar, 2009). The interventions are designed to regulate emotion and engage cognitive process through the modulation of sensation and were highly creative and often cost effective.

## **9.6 Proprioceptive Strategies**

### **9.6.1 Breathing for Interoceptive Modulation**

The participants used multiple breathing techniques with the explanation that they give deep proprioceptive feedback. Breathing has long been considered a form of emotional, sensory regulation (King, 1990). Recent research appears to suggest that one aspect of mindfulness training – “interoceptive attention to visceral bodily sensations” - alters processing in the brain (Farb et.al., 2013:1). Preliminary findings suggest altered cortical plasticity (ibid:1). Ogden et.al., (2006), Van der Hart et.al. (2006) & Van der Kolk, refer to breathing as a strategy that can be used to help a client to ground. Van der Kolk (2014) supports the two-pronged approach of top-down and bottom-up regulation of the body. That deep breathing, moving the diaphragm gives proprioceptive feedback is well documented over time (King, 1990; Van der Kolk, 2014).

### **9.6.2 Proprioceptive Feedback Tools: The Wilbarger Protocol, Squashing, Body Resistance, Clothing, Sensory and Physical Environment**

Another strategy advocated by some of the UK participants (Zoe, Katy and Lena) as a way of giving deep proprioceptive feedback was the Wilbarger Protocol. The Wilbarger protocol is described as a treatment for sensory overresponsivity said to “result in fear, irritability, aggression or avoidance behaviours in children” (Weeks et.al.,2012:79).

Weeks et.al. argue that a lack of good quality research exists in order to confirm or refute the anecdotal understanding that the Wilbarger Protocol is an effective method to “reduce challenging behaviour” (ibid:79) in children. They caution practitioner’s enthusiasm for the approach and call for more research. I agree with their call however the findings of this study did correspond with the anecdotal evidence that challenging and avoidant behaviour was indeed thought by the occupational therapists who took part in the study, to be reduced with the use of this method.

The UK practitioners in this study clearly thought highly of methods such as compression wear, squeezing, applying deep pressure and body resistance in order to give proprioceptive feedback to their clients. There is little research evidence yet to support their anecdotal evidence. Quigley et.al. (2011) reviewed studies exploring the use of weighted vests to mitigate challenging behaviour in children. It was concluded that practitioner bias influenced effectiveness outcomes. The authors continued to carry out “rigorous research” in an effort to account for the practitioner variable and found no “scientific empirical evidence to support the use of weighted vests”. (ibid: 538). The researchers did not talk to the children about how they felt wearing the weighted vests or to the practitioners about why they held such conviction. The studies available are

specific to particular behaviour modification and do not address individual affective experience. What was evident in both of these studies mentioned along with the studies reviewed, there did appear to be evidence of the behaviours the researchers thought to be desirable occurring in some of the participants, some of the time. Lena was very careful to explain that different types of weighted vest would suit different types of client need. The practitioners appeared to view defining individual differences and matching solutions as a creative art. Perhaps this could suggest that more consultation with practitioners and service users with regards to the specific way they use proprioceptive intervention with regard to individual difference is needed.

Lena was keen to suggest that compression clothing could be useful for some clients. Compression wear is currently marketed as effective in giving proprioceptive feedback, however further research needs to be carried out. Other tips that the practitioners gave for psychotherapists to use as grounding strategies are listed below.

### **9.6.3 Therapeutic Listening**

Stern (1998:80) points out the importance of the spatial flow in the rhythm of sounds in speech - prosody. He proposes that infants begin to organise their experience in response to “face to face duets” with their caregiver organising the sound between them. Sound in the form of Therapeutic Listening was held by all of the UK practitioners involved in the study as a way of regulating emotional process to engage cognitive function. They saw therapeutic listening as a way to anchor their client in time and space using different rhythms. Frick (2018) writes extensively about her clinical practice of Therapeutic Listening and links sensory modulation with early developmental issues and

trauma. Hayley described Frick as a creative inventor who intuitively designed therapeutic listening interventions for her clients.

Frick writes: "Several research studies examining the inter-relationship of the vestibular and auditory system concluded that the vestibular system is primal to rhythm perception." Frick (2017) argues that movement influences our perception of rhythm and that this is connected to emotional experience. Phillips et.al (2005), one of the studies Frick refers to in the quotation, propose that there is a relationship between the vestibular system and the auditory system. They suggest that we need to feel in order to hear the beat in music. Frick (2017) uses this as evidence to support therapeutic listening as an intervention to modulate sensory feedback and regulate emotion. She says (ibid): "By addressing the auditory system and the use of rhythm in our treatment, we are: turning on the internal timekeeper to time movement, supporting the ability to relate to events in the environment, organising self-motion perception, and priming the basic organisation of body in the space. Thus, it is possible to see how the addition of filtered, rhythmical music could support basic timing of motor movements and increase perception of one's body in the spatial context; functions that are often associated with the vestibular-proprioceptive systems." The UK practitioners in this study all talked about the benefits of therapeutic listening as a vestibular strategy to modulate emotion and engage cognition.

This field is still in its infancy in terms of research and further research is needed in the areas discussed throughout this project. The UK practitioners were enthusiastic about the benefits of therapeutic listening and it is worth psychological practitioners becoming

aware of trained therapists to collaborate with and the tools open in this area. The UK therapists in this study were using the therapeutic listening tools to regulate emotion, to aid sleep, engage cognition, for postural organisation and sensory modulation. Future research could lead to the use of therapeutic listening in psychotherapy, on psychiatric wards, in prisons and other spaces where sensory regulation is important for people with sensory regulation issues.

## **10. Vestibular Feedback**

Vestibular feedback was spoken about by all of the practitioners however there appeared to be a greater concern for accuracy in any interventions. It was felt by some of the practitioners that vestibular feedback could be regulating. It was also noted by Zoe it could be disorienting and potentially disturbing. Linear vestibular feedback was mainly seen though to be calming and organising, whilst rotational swinging was thought to be alerting. Rocking and swinging were seen as linear vestibular inputs that clients could self-regulate. Bouncing although less predictable was given as an example to be modulating and alerting.

Ayres describes how jumping up and down makes the carbonated crystals in the head move in different ways. Spinning, rolling and vibration have different effects on the vestibular system (Ayres, 2005). “The vestibular nuclei are the “business centers” that process vestibular input along with information from the muscles, joints, skin and visual and auditory receptors.” (ibid:62). There is a growing body of literature that suggests the inner ear vestibular system has a substantial impact on cognitive function, (Bigelow et.al., 2015) articulate connections with the vestibular system, affective disorders and

emotion. In their comprehensive review of vestibular function, cognition and psychiatric symptoms, Gurvich et.al. (2013:245) suggest: “the vestibular system can be considered a potential window for exploring brain function beyond that of maintenance of balance, and into areas of cognitive, affective and psychiatric symptomology”.

Vestibular differences can mean that clients may have a variety of presentations: low muscle tone, which may mean that they appear floppy and sit potentially appearing bored; they can be seen to be lazy due to persistently sitting and experiencing fatigue or lethargy; this can make people resistant to movement; they can appear clumsy, rock, go round and round in circles, bang their heads, or hit out. The practitioners were concerned about the impact on relationships that these presentations could have. The participants suggested that there could be a negative impact with this type of function labeled pejoratively.

Both Bigelow et.al. (2015) and Gurvich et.al (2013) suggest that there is a requirement for further enquiry in this area. Most enquiry into the proprioceptive and vestibular systems appears to be regarding function rather than emotion or cognition and the field would benefit from greater collaborative attention and more qualitative study.

## **11. The Disconnection Between Occupational Therapy and Psychology**

Cross-collaborative research in the field of occupational therapy and the psychological therapies appears to be limited. Champagne & Stromberg, (2002) point out the need for cross-disciplinary collaboration both in theoretical research and in practice. Practitioners argued that the diagnosis of sensory processing disorder be considered for inclusion in

the latest version of the diagnostic and statistical manual of mental health disorders - DSMV (APA, 2015, Champagne et.al., 2010). Walbam concludes that inclusion in the DSMV may have increased sensory integration disorders “interdisciplinary recognition” (Walbam, 2014: 62).

Some of the participants described their frustrations with interdisciplinary communication about these complex notions. As described in the findings section the practitioners were seen as crazy or weird until the results of their interventions were clinically seen to be effective. These are clearly complex, abstract ideas – praxis, sequencing, interoception, space and time are challenging to describe, communicate and research. If there is not dialogue across disciplines between people who “get it” (Zoe) I do not feel that deeper understandings about what it is to be human can be created.

### **9.8.1 Communicating About Non-Verbal Process**

It became evident during the process of this research that talking about interoception across disciplines was a complex process. It was clear that there were cultural and language differences. Communication worked in different ways for occupational therapists. Videoing appeared to be a preferred method of communication for all of the participants. Videoing is not traditionally used in adult psychotherapy due to issues of confidentiality. However psychological practitioners working with infants often use video to capture moments in time (Beebe & Lachman, 1998; Stern, 2004).

It could be suggested that video is useful to show non-verbal process in sessions, training and viva processes. Stern (2004) discusses how the world of micromoments of

non-verbal communication was opened up to him when he used video. Stern used video “freeze-frame, slow motion, segment repeats” (ibid:xiii) to open up the non-verbal between patient and psychological practitioner. Stern shares an excerpt of the beginning of a session where he videoed a patient's entry to the room. She took time to come in and settle herself onto her chair. He noticed that the usual course of breathing, settling and turn taking between him and his patient – purely communicated through her movement on the chair and his breathing in response - was disturbed: “I feel like I have been caught in a game of ‘statue’. It is ridiculous. And I can sense an annoyance in me to have my rhythms so disrupted and controlled.” (Stern, 2004:xii). Stern felt that the story of the patient's relational issues, were revealed through the analysis of the video clip. Further thought could be given to the ethics and practicalities of the use of video in psychological practice and training.

In addition to differences in media it takes time to communicate about complex non-verbal process across disciplines. “Weird” [Zoe], “crazy” [Lena] and “slightly mad” [Emma], were phrases that were used when practitioners described how they were viewed at first by colleagues when trying to speak to others about complex non-verbal, internal process. I identified with what the practitioners felt like having experienced this reaction in my own field regularly in the research process and in practice working on inpatient, psychiatric wards. I have reflected on this aspect of trying to research this complex, abstract area in research supervision and therapy. Trying to communicate with tutors and examiners with no experience of sensory integration has been frustrating.



The people who “got it” [Zoe, Emma & Lena] (Dwyer & Buckle, 2009), were usually people with experiential, personal experience of the phenomena through contact with the field because of family members. Many practitioners who have come to use sensory integration theory and tools in their work have come to them first personally – this was the case for five of the participants who took part in the study.

Mendizabel et.al. (2014) states that: “common knowledge. Certainly, all members must understand the ideas being communicated. They must also understand the context in which they are communicating or, more importantly, they need to be able to improve their understanding as they communicate their ideas.” Sharing knowledge can be challenging for instance when trying to communicate in a psychiatric ward round. When first trying to have rolling outside, swimming and a weighted blanket written in to a client’s care plan the psychiatry team certainly viewed my ideas and me as crazy. I took time over weeks of meetings to present ideas and research and eventually they saw for themselves the reduction of restraint in individual patients when using sensory integration strategies (Champagne et.al. 2009). The participants felt that it took resilience, patience and a consistent message over time to communicate complex ideas across disciplines. When colleagues witnessed outcomes [Lena, Emma & Zoe] it appeared that this was powerful. The showing rather than telling was important to communicating about embodied, non-verbal process across disciplines.

### **9.8.2 Conforming to the Medical Model**

As this challenge to communication became evident in the process of study it became part of my enquiry to ask why it might be complicated for sensory integration theory and

tools to inform psychological practice. My confident, assumptive 'how can' at the beginning of the study became 'can' sensory integration theory inform psychological therapies and services? I felt that it was important to understand any challenges to cross-disciplinary communication as part of the interview process.

Fiscal issues were clearly affecting practitioners in the study in practice and research. The participant from the US talked about being involved in cross-disciplinary research with a psychoanalytic colleague. Her private practice clearly had a budget that was not evident in services in the UK. The UK practitioners were clear that budgets did not allow for cross-disciplinary collaboration and often departments were in competition for funding. In most psychological settings the body/mind split remained in practice despite evidence for an integrated approach (Breathnach, 2018; Brown et.al.; 2009; Koomar, 2009)

The psychiatric, medical community appear to have accepted sensory processing disorder fully as a diagnosis in infancy. It has been recognised in the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Childhood (DC:03R) since 1994, yet is not recognised as a mental disorder in DSMV (APA, 2013). In practice this means that insurance funding for sensory integration intervention is not available for any but the most severe client presentation. It was once available for children diagnosed with autism spectrum disorder and developmental coordination disorder. This is no longer the case. Support from colleagues trained in sensory integration in psychological practice could be ideal as "multi-disciplinary, complex problems are better explained using different disciplines at once – and their different methods and tools." (Mendizabel, 2014:2). However funding means that this rarely

happens in practice. The only place where cross-disciplinary practice appeared to be happening was in the US. In the UK in private practice creative groups of practitioners were collaborating across disciplines and supporting each other. These connections usually came about through personal experience of sharing resource to help family members.

It is evident that lived experience is not valued in clinical settings such as the NHS and training organisations. Hayley experienced hostility towards her approach until the results of sensory integration interventions were witnessed. It was a struggle to get academic support for this study from gatekeepers. If cross-collaborative study is to develop support structures need to be put in place for students and practitioners. Difference creates defensiveness and often aggression in others and it is important that this is mitigated for (Lorenz, 1963). This tension needs to be researched further. I presented this aspect of my experience in researching across disciplinary boundaries to the Metanoia Institute Ethical Research Board. I proposed that the Ethical Guidelines include a paragraph asking how practitioners attempting to research across boundaries would support themselves. I suggested that two supervisors one from each discipline should be considered and it was agreed that this would be added to the college's ethical guidelines.

## **10. Limitations of the Study**

There are a number of design limitations in this study and it is hoped that future research may address some of these factors.

## **10.1 Small Number of Participants**

Recruitment was challenging. At the outset of the study I felt that I had made a number of personal contacts with professionals in the field and it would be straightforward to gain participants trained in sensory integration theory and collect meaningful data. I had discussed crossing these boundaries in previous group research seminars and in supervision. No ethical issues were identified.

## **10.2 Disconnection**

However the initial contact proved to be challenging as to these practitioners I was in relationship with them from personal perspective and not viewed as a psychological practitioner or researcher. Professionals that had spoken so freely about connections to sensory issues they had made to working with what are traditionally called mental health issues such as trauma, sleep disorder and anxiety - when speaking to me in a personal, relaxed open way, felt they were not able to speak on tape in my role as psychological practitioner and researcher. On reflection the crossing of boundaries began to emerge at this point in the study. Two occupational therapists employed by the NHS told me that because of their role in the NHS they felt they could not participate in the study. Others simply did not reply to emails.

I became disconnected from the study and wanted to change my enquiry on many occasions. On reflection I think that this disconnection was a parallel process. This eventually became something that I discussed with participants to understand how better to improve communication within and across disciplines concerning this topic. After

exhaustive searching in the UK, I had to go further afield and found my first participant in the US. Culturally collaboration between sensory integration practitioners and psychotherapists is perhaps more common in the US. The participants then flowed from that initial contact.

### **10.3 Limited Participant Diversity**

Due to the nature of the difficulties I experienced in finding participants there was limited diversity in the applicants that were involved in the study. All were Caucasian women. There were a variety of nationalities represented in the respondents: German, South-African, English and American but the majority practiced in the South-East of England. My findings indicate that there may be cultural differences in the understanding and application of sensory integration theory. With the limited number of participants and heterogeneity limited in this study it is impossible to draw conclusions. It could be surmised that further study of this aspect is needed.

While this research has offered insight to how sensory integration theory could be useful to psychological therapies and services I think a cross-disciplinary collaboration could be useful. A psychotherapist and occupational therapist researching together may be able to access each other's worlds more effectively. By considering cross-disciplinary research, participants that were not available to me as an outsider to the field may have been more open to respond (Dwyer & Buckle, 2009).

#### **10.4 Depth of Study Limited**

I was unable to map the language used across disciplines as originally hoped. The small sample size did not allow for a comprehensive mapping of how the practitioners work. This research represents the first steps in beginning to map the phenomenon. The discipline of occupational therapy has been working to develop a nosology for understanding and identifying sensory dysfunction (Miller, 2017).

In the US the trend towards viewing the infant body in relation to caregiver body as the greatest tool for sensory integration needs further specific research. Focusing specifically on this approach may reveal different implications for practice than indicated in this study. Only one respondent out of the six worked with infants at the time of study and therefore I do not feel that this approach was adequately covered or explored. Four respondents in this study worked in the NHS whilst offering small, private practice. The majority of the practitioners worked with children that were diagnosed as having special needs for instance: Rhetts Syndrome, Autism Spectrum Disorder, Downs Syndrome, “looked after children”\* and “attachment children”\* (\*participants terms) apart from in private practice. This was useful in as much as it framed an inclusive stance to practice that is evidently engrained in this approach. Although most of the practitioners spoke about working with adults, their work was mainly with infants and children. Much of what is written about in sensory integration is specifically regarding children (Ayres, 2006; Myles et.al., 2005), it is as if there is a cut off in practice. The practitioners were clear that there was no age cut off and sensory integration issues affecting emotion and behavior were pervasive and enduring into adulthood.

There appeared to be a benefit to using a wide range of interoceptive interventions to regulate emotion. More specific qualitative research asking recipients about their experience of the interventions could give more detailed information about the benefit or otherwise. Other study would benefit from a phenomenological approach wherein clients speak about their experience of the interventions. A future study could speak to people with sensory integration issues and ask questions like: What does it feel like when you swing? What does it feel like when you are squashed? These types of questions could give a clearer idea of what interventions are useful and could offer more depth about the experience of the interventions. This research relies on the interpretation of a psychological practitioner interpreting occupational practitioners experience rather than first hand experience and therefore limits these findings.

More information about the clients that the practitioners worked with currently and in the past would have been pertinent to this study. This thematic analysis was to ask how practitioners worked. This information would help to inform why the practitioners used particular interventions with particular clients. I would have liked to run a group with the practitioners in order to present my findings and gain more depth of understanding. I have wondered if the interviews and my developmental psychological perspective have impacted the way the practitioners work with people and if they have adapted their practice in any way.

## **11. Personal reflections**

### **11.1 Implications for Theory and Practice**

This research study used thematic analysis and engaged a small, purposively selected sample of six participants in order to hold a psychological lens to sensory integration

theory and tool. The study did not seek to establish a theory (Charmaz, 2014), intending only to add to the slowly building research in this area and represent an aspect of the practitioners experience for readers to engage with (McLeod, 2013).

It is a qualitative study seeking to understand in depth the view of a small number of practitioners. “The value of qualitative description lies not only in the knowledge that can originate from it, but also because it is a vehicle for presenting and treating research methods as living entities that resist simple classification, and can result in establishing meaning and solid findings” (Vaismoradi, 2013). The results offer a view consistent with the findings in occupational therapy literature (Ayres, 2005; Champagne, 2011; Dunn, 2009; Kranowitz, 2005) and trauma literature (Bromberg, 2009 & 2014, Ogden et.al., 2006, Van der Kolk, 2014,). The findings provide support for the consideration of sensory integration informed clinical practices and research. On reflection the study could have taken a sensorial approach using experiential methods such as filming for instance – as used by the practitioners in practice and training. I also feel that I could have used alternative methods to present this project such as film, other visual thematic maps or perhaps auditory methods. I feel that a lack of confidence and a desire to conform kept me to more mainstream methods of presentation. I am also an experiential learner and tend towards what I am familiar with in sensory terms. I realise that this may make my own piece inaccessible to some. This highlights the need for researchers, including myself, to consider some creative ways of translating research into accessible forms for multiple audiences.



## **11. Personal Reflections**

I offer the following recommendations for psychological practitioners, gatekeepers, training institutions and further research and training.

### **11.1.1 Assessment**

Psychological practitioners could use the sensory assessment tools available (Ayres, 2005; Champagne, 2011; Dunn, 2009) during intake to psychological services. There are separate assessment tools available for both adults and children. The assessment would include patients admitted to trauma centres such as accident and emergency departments for mental health problems, drug and alcohol rehabilitation centres, Child and Adolescent Mental Health Services, in-patient psychiatric services and forensic services, psychotherapy and counselling practise both adult and children's services. Collecting data at entry point would help further understanding of this issue in these populations using psychological services.

The first step to understanding behavioural and emotional responses would be to collaboratively interpret an individual sensory profile with the client to define their response to the sensory environment (Ayres, 2005). Practitioners and caregivers would make an effort to understand the sensory patterns, seeking and avoidant behaviours of their clients. This would give a pattern of hypo and hypersensitivity that the client may experience. Environmental suggestions could be given.

The implication of this would be that training and assessment tools would need to become more open and available to psychological practitioners and not simply occupational therapists. There is evidently a great overlap in emotion and sensory experience (Merleau-Ponty, 2002) and yet the fields continue to be split with expertise restricted in one domain or another. My own personal experience of trying to research in this area was one of exclusion by gatekeepers on a number of occasions. Gatekeepers could consider how lived experience can be valued and measured as it is appears that it is this is an aspect that draws people across disciplinary boundaries.

#### **11.1.2 Inclusive Empowerment**

Helping the client and caregiver understand their sensory response to the environment was seen to be as important as the treatment itself. This top-down educational approach was seen to empower the individual to be able to navigate their environment on their own terms and regulate themselves in order to become calm and in an alert cognitive enabling state (Myles et.al.,2005). Adopting an inclusive stance to psychotherapy practice is important so that people with sensory integration differences can access psychological services (NAS, 2018). Understanding sensory integration differences can be deeply therapeutic in and of itself (Kranowitz, 2016).

#### **11.1.3 Sensory Integration Informed Practice and CPD**

This study suggests the need for a continued development training in sensory integration theory and practice specifically for psychological practitioners to be devised. By being informed of sensory integration theory psychological practitioners and clients themselves can gain a deeper understanding of their feelings and behaviour in response to their

sensory selves in context. Defining our own sensory seeking and avoidant behavior can inform methods of self-soothing. Becoming more aware of our individual sensory response to environment can reduce emotional dysregulation.

This process can be done less formally too through asking the client to make an image of their own inner sensory experience – words or art could be used. Sally described an exercise where she encouraged clients to draw pictures about an emotion for instance fear. Sally used an interpretation of the drawing from a sensory integration view integrated with a psychoanalytic view. She also asked clients to draw how they felt in time and space. This exercise can perhaps help a client make these abstract sensations more concrete and therefore easier to process.

#### **11.1.4 The Sensory Self**

My recommendation for psychotherapists is that as a dyad, therapist and client attempt to research the subjective experience of the sensory self in relation both to the other and to their own inner selves (Bromberg, 1996). We do this through sensitivity to our bodily sensations, feelings and actions, monitoring our own interoceptive experience. I understand this sensory empathic stance akin to working with unconscious process through transference and countertransference (Ogden et.al,2006; Schore et.al.,2007, Stolorow et.al., 1995).

Psychotherapy can be seen as the opportunity for two bodies encompassing our sensory selves (Shaw, 2012) and two minds to meet at a certain time and place to create reflective time and space for neural growth (Shore et.al., 2007), reflexivity and

subsequent maturity (Cozolino, 2010; McGilchrist, 2010). The space to understand and reflect on each individual's sensory self could be useful to reduce shame about difference (DeYoung, 2013). It may help clients gain a sense of their body in time and space.

It is this depth of understanding of sensory integration issues that this research indicates is important for psychological practitioners to learn or at least to gain a familiarity with. Practitioners should be aware of sensory difference and the impact that it can have on their client's emotional wellbeing, anxiety and self-esteem. This research indicates that a CPD programme would be useful for psychological practitioners and that training institutions include sensory integration training in formal trainings.

**11.1.5 Relational issues:** In developmental terms psychological practitioners may wish to consider the implications on relationship that sensory processing differences may bring. A client with sensory processing differences may appear to have flat affect as they simply may not process tone in speech or they take longer to process auditory input than others, (ibid). Diagnosticians should be aware of these issues. Flat affect should not be confused with other disorders listed in the DSMV (APA, 2013). Sensory processing disorder appears to have a symptom profile that may be present across a range of neurodevelopmental disorders (Miller, 2009).

Clients with sensory processing differences may not respond as would be expected – they may not smile in the 'right' places or speak at the 'right' time (Hendrickx, 2015) – I use inverted commas to suggest that the notion of right needs to be challenged as it may be right for the individual taking time to process information using other senses. As turn

taking and contingency are important in relationship (Stern, 2001) it may be confusing for clients, caregivers and practitioners and effort would be needed to develop sensory empathy to understand the differences. The psychotherapist can educate both caregivers and clients about sensory overload and emotional dysregulation in order to create new meanings with their clients about behaviour.

Referral to sensory integration specialists could be considered and in some cases a multi-disciplinary approach could be taken. Where sensory disorder is suspected infants and children could be referred into a specialist service that offers a dyadic approach to therapy such as DIR-Floortime© or DDP (Dyadic Developmental Psychotherapy (Hughes, 2018) - a developmental, biopsychosocial model of development that takes into account individual differences in sensory modulation, sensory processing and motor planning (Greenspan & Weider, 2006). There are a few practitioners adopting this integrated approach in the UK attempting to understand how individual differences in sensory modulation, sensory processing impact emotion and cognitive capacity (Greenspan & Weider, 2006).

#### **11.1.6 Communication**

With restricted finances and multi-disciplinary approaches becoming less available it is important that psychology and occupational therapy share expertise and collaborate rather than compartmentalise and compete. Dunn (2001:614) states “If we are to understand the role of sensory processing in our humanity; including how it affects people’s lives, we must consider how knowledge generated across disciplines informs our conception of being human”. I think that understanding each others language and

how each discipline communicates is an important step to understanding and sharing information across disciplines. More funding is needed to support practitioners collaborating across disciplines. A stance of curiosity, collaboration, sharing, generosity and openness between disciplines is needed. I hope to develop a CPD programme to offer to practitioners in the psychological therapies.

### **11.1.7 Sensory Intervention**

Teaching clients how to self-regulate using cost-effective interoceptive interventions such as using chewing gum - four pieces of gum at the same time is seen to give proprioceptive feedback, the Wilbarger Protocol (they would need training for this), joint compressions, 'white knuckle rides', drinking carbonated drinks, fiddling with putty and other methods of proprioceptive feedback could be useful both in and out of session. Hayley has numerous sorts of seating in her school setting (Appendix 1), which could be used in a psychotherapy setting. Practitioners could consider what seating they use for clients with sensory differences. Proprioceptive strategies and sensory diets are used by occupational therapists to help clients learn to emotionally regulate and engage thinking. More research would need to be done in order to find out if these techniques and tools could be used in psychotherapy to regulate dissociation and to enable an alert, thinking state.

### **11.1.8 Reflections on Language**

The way that the practitioners I spoke to described "meltdown" sounded similar in some of the cases to the process of dissociation. The terms just right, calm and alert also sounded similar to the term window of tolerance – more research is required to map

these terms and find similarities and define meaning across disciplines. Practitioners need to be less competitive and exclusive with terms in order to enable collaboration and reduce competition. This would mean that more funding for collaboration would need to come from central sources perhaps government for health services in order for theory and services to develop.

## **11.2 Environment**

The practitioners in this study used interoceptive and exteroceptive interventions and education in order to aid clients find ways to regulate themselves in every day settings. By understanding these issues psychotherapists and practitioners in psychological services may be able to moderate their sensory environments.

External, physical sensory environments can be over stimulating, Environments could be modified in the following ways:

**11.2.1 Olfactory:** Practitioners being aware of wearing strong perfumes or deodorant. Not using strongly scented cleaning products, candles etc. Large echo filled rooms with smells and noises for instance an institutional school, hospital or prison dining-hall (Myles et.al, 2006) can be difficult for people with sensory differences. Having an awareness of smells in the environment, not attempting therapeutic interventions at mealtimes in inpatient and forensic settings when there could be strong food smells.

**11.2.2 Tactile:** being careful not to brush past clients in the corridor as for some this could be disconcerting and may be misinterpreted. "Light touch can be mistaken as a hit,

causing a defensive response” (Myles et.al, 2005: 86). For practitioners who use touch – to take an open, curious approach to touch being sensitive to the clients needs. It is important not to make assumptions about touch and how it will be experienced. People can be hypersensitive and hyposensitive to sensory stimuli at the same time in different places. This can create a confusing picture for practitioners (ibid).

**11.2.3 Lighting:** can be regulated to suit client needs. Some clients may need a bright environment in which to function, other clients may need dim lighting. Avoid fluorescent lighting (ibid).

**11.2.4 Auditory:** “It’s not just about volume – consider also pitch, rhythm and sequence of sounds” (ibid: iv). Sally detailed the intricate process of attending to prosody and the impact of processing speeds on people with sensory processing differences. She recommended paying attention to the speed, pitch and tone of the voice. How voices are heard and processed by different people in different environments could be an area for further research for psychotherapists and occupational therapists alike. Levine (2010) suggests that emotion and safety can be conveyed in the tone of voice – but for those with sensory differences the tone may need to be lower and slower than usual or higher and faster to be more engaging or received as calm. The psychological practitioner would need to be open to feedback to regulate their tone. Helping a client to understand their phenomenology as the psychotherapist speaks could be part of that process (Van der Kolk, 2014).

Some people may be unable to decode affect from the tone of voice in the same way as other clients at a distance (Greenspan & Weider, 2005). In practical terms psychological



practitioners could be aware of the size of their room. A smaller space may enable sound to travel more directly to be encoded more accurately. Zoe also recommended practical solutions such as felt pads under chair legs to prevent scraping. Turn off electrical appliances in the vicinity that may emit white noise. Awareness that for some people who are hyper-alert to noise even the smallest noise can be disrupting and affect their embodied emotional state and ability to think.

## **12. Conclusion**

In conclusion this section will present a summary of the findings and discuss the significance of this research.

### **12.1 Summary of the Findings**

Thematic analysis was used as a flexible method to achieve an in-depth enquiry into the use of sensory integration theory and tools through a psychological lens (Vaismoradi et.al. 2013). There is no claim to truth or theory therefore the findings and recommendations are tentative. In addition to a thorough analysis of the data interpretations were made. Three main themes were identified across the data through the research process, each including a number of sub-themes:

### **12.2 Sensory Regulation and Emotional Regulation Entwined**

The first main theme captured the notion that sensory integration and emotion were deeply interconnected. The essence of sensation, particularly interoceptive experience is difficult to capture in words both in research, writing, theoretically and in practice (Balint, 1992). I acknowledged this challenge in designing research that could begin to dialogue

with this matter (Latour, 2004). However this study and the supporting literature has led me to understand that our sense of self is entwined with our sensory, interoceptive, bodily, felt sense of ourselves (Greenspan & Wieder, 2006; Rothschild, 2017; Van der Kolk, 2014).

### **12.3 Sensory Regulation Strategies**

The second main theme portrayed the practical application of theory and strategies used by sensory integration specialists. Breathing, pressure, body resistance, clothing, therapeutic listening and vestibular feedback are amongst the strategies that were discussed.

### **12.4 Disconnection Between Occupational Therapy and Psychological Practice**

The final theme addressed the tensions in cross-disciplinary discourse. The challenges of articulating non-verbal processes were highlighted. The influence of the medical model on sensory integration theory and collaborative knowledge exchange and practice was considered.

### **12.5. Significance of the Study**

This study sought to understand how sensory integration theory and practice could influence psychological therapies. The idiographic nature of the research has enabled a discourse between professionals from occupational therapy and psychotherapy. The findings have contributed to the growing dialogue between disciplines highlighting the importance of an inclusive stance to therapy, engaging in creative sensory integrative assessment and therapy. I plan to continue this dialogue with psychotherapy colleagues by preparing an article for *Therapy Today*, *The New Psychotherapist* and the *Counselling*

Psychology Review. I have written an article, which has been published in BACP Children, Young People and Families Journal, June 2019. I plan a continued professional development training to offer to psychotherapy colleagues as an introduction to sensory integration theory and the way the theory could be applied in practice. The study supports a number of recommendations for psychotherapy practice including recommendations for sensory inclusive practice and environments. Sensory integration theory, practice and tools can make a significant contribution to the psychological therapies both when working with children and adults. I am expanding my own practice collaborating with colleagues with sensory integration training.

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## 14. Appendices

### Appendix 1      Sensory Integration Equipment



#### **Purple people eater**

This equipment is used by occupational therapists to give proprioceptive feedback through the squishy material and enclosed space packed out with duvets, rugs or balls - and – vestibular feedback in terms of the swinging round and round as the equipment spins attached to the ceiling.



#### **Weighted blanket**

The weighted blanket can be prescribed in different weights according to the size, preference and need of the person. It is said to give proprioceptive feedback. The child or adult snuggles underneath it.

## Wobble Stool

The wobble stool is used in education, office and home environments to give people proprioceptive and vestibular feedback with little or no effort on behalf of the user.



## Hug Chair

The hug chair is used for stimulating the sensory system. The manufacturer's description is as follows: "The chair's mouldable, sense-stimulating ball filling inside the seat, back and side flaps makes the user feel comfortable in sitting and reclining positions. The balls stimulate the body's sense of touch as well as the muscle and joint position senses, and the weight and pressure of the balls increase body awareness and promote calmness.

With its four side flaps, the chair hugs the body closely, giving the user a feeling of safety



and security."

### **Wobble Cushion**

The wobble cushion is used to develop core strength and give proprioceptive and vestibular feedback to the user whilst sitting.



### **Wilbarger Protocol Therapressure Brush**

Therapressure brush as used in the Wilbarger Protocol – deep pressure brushing treatment.





## Finger Roller

Finger roller used to give joint compression and proprioceptive feedback.



## Chatter Tracker

A chatter tracker is a device used to monitor sound noise level in a room. The level can be set according to each user to alert anyone near the tracker if the sound level is too high. The red light will light up if a certain noise level is reached.

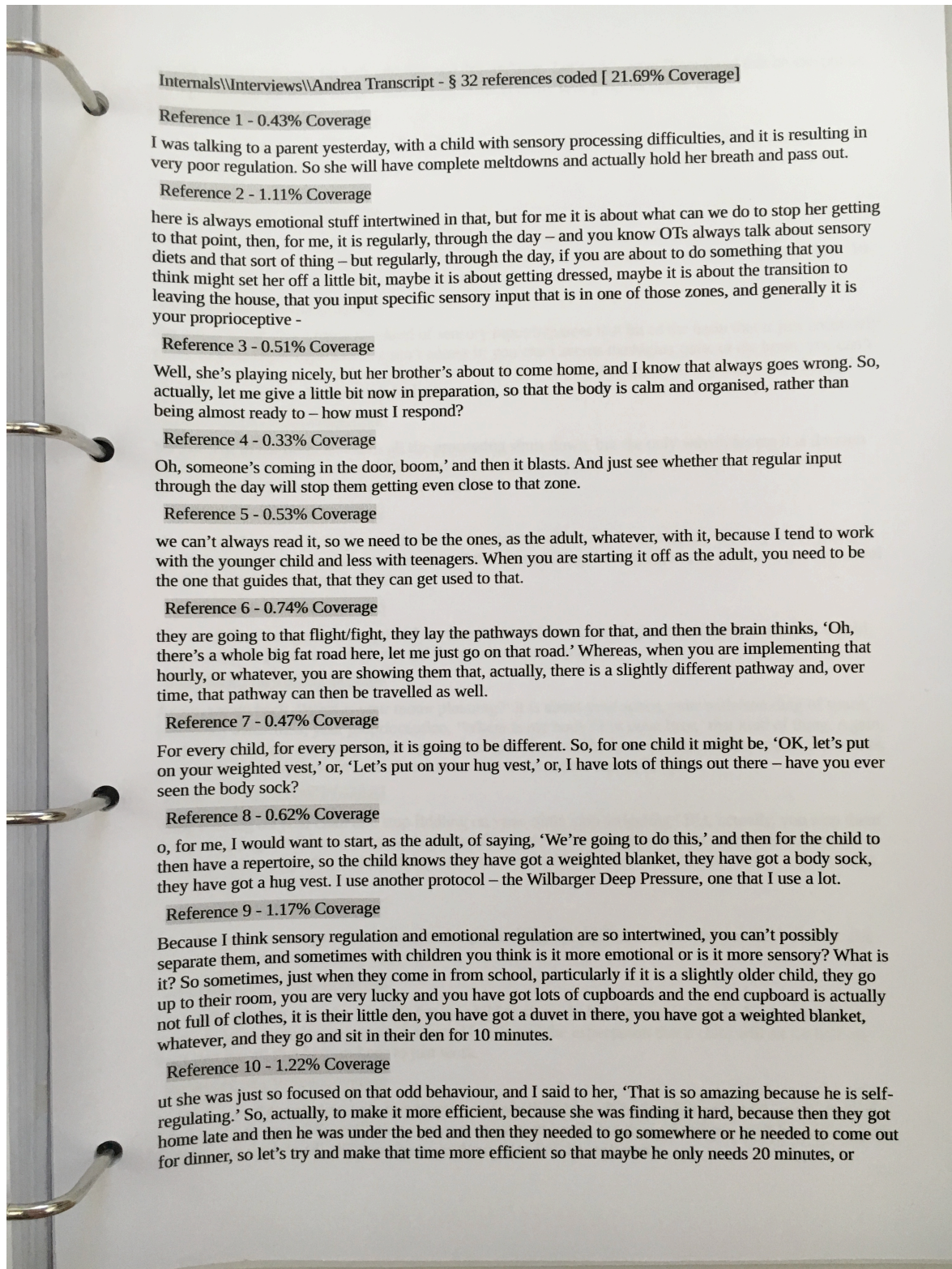


## Early Coding Example

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### Appendix 3      Example of Data Collated in NVivo Detailing Some of the References for the Sensory Regulation Code



## Appendix 4 Ethical Approval Letter



13 North Common Road  
Ealing, London W5 2QB  
Telephone: 020 8579 2505  
Facsimile: 020 8832 3070  
www.metanoia.ac.uk

Georgie Bainbridge  
Doctorate in Counselling Psychology and Psychotherapy by Professional Studies (DCPSych)  
Metanoia Institute

11<sup>th</sup> March 2016

*Ref: 4/15-16*

Dear Georgie,

*Re: Sensation in psychotherapy through the lens of sensory integration theory*

I am pleased to let you know that the above project has been granted ethical approval by Metanoia Research Ethics Committee. If in the course of carrying out the project there are any new developments that may have ethical implications, please inform me as research ethics representative for the DCPSych programme.

Yours sincerely,

Prof Vanja Orlans  
Senior Director of Studies & Programme Leader DCPSych  
Faculty of Post-Qualification and Professional Doctorates

On behalf of Metanoia Research Ethics Committee

Registered in England at the  
above address No. 2918520

Registered Charity No. 1050175

## **Appendix 5            Sample of Questions from Interview Guide**

### **Personal introduction and context Georgie Bainbridge**

#### **Contextual Questions**

e.g. Name

Job title

Where do you work?

How often?

What type of practice?

How do you get clients?

How did you come across sensory integration theory?

#### **Operational Questions**

e.g. How do you work?

When did you start to use sensory integration theory in your work?

How do you use sensory integration theory in your work and with which clients?

Can you give me some live examples of your work?

#### **Meaning Questions**

e.g. Why did sensory integration theory become important to your work?

What do you see in clients when you integrate sensory integration theory into your work?

What have you noticed about the way that you work that may be different to your other colleagues?

If you were to tell psychotherapists something important about sensory integration theory what would it be?

## Appendix 6 Literature Search Terms

The methodology for the literature review developed during the study to include the following search terms:

| Data input  | Additional data item  |
|---|---|
| Sensory Integration   | Psychology<br>Psychotherapy<br>Counselling  |
| Sensory Modulation  | Psychology<br>Psychotherapy<br>Counselling  |
| Sensory<br>Integration/Modulation<br><br>Neuroscience<br><br>Neuroscience | Trauma<br><br>Prematurity<br><br>Caesarian<br><br>Sensory<br>integration/modulation<br><br>Left/right brain specificity |